Protecting the Worker from Disability: Challenges for the Eighties

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Paul C. Weiler

A report submitted to
Russell H. Ramsay
Minister of Labour
April, 1983.

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The Honourable Russell H. Ramsay
Minister of Labour
Province of Ontario
Toronto, Ontario

Dear Mr. Minister:

I am pleased to deliver to you the second Report of my Inquiry into workers' compensation in Ontario. My first Report dealt with a range of immediate concerns regarding the level and administration of benefits within the existing system. In this Report I address the longer-range issues of how industrial disease should be handled within workers' compensation, and the relationship of this program to others involved in the compensation and prevention of disabling injuries to Ontario workers. Later this year I shall report to you on the subject of the Accident Prevention Associations.

I look forward to speaking with you personally about my findings and recommendations in this Report.

Respectfully,

Paul Weiler

Paul C. Weiler
Professor of Law

Acknowledgements

Writing a Report such as this is inevitably a collaborative effort. At the outset, then, I must acknowledge the efforts of those who helped me throughout the course of my Inquiry. My research associates, Annalee Yassi, Cherith Muir, and Anne Forrest educated me on the subjects of, respectively, industrial disease (Ch. 2), comprehensive disability insurance (Ch. 3), and accident prevention (Ch. 4). My secretary, Susan Dengler, typed and re-typed the manuscript of this Report. Patrick Atiyah, Peter Barth and Robert Prichard read an earlier draft and made many suggestions for improvement. My editor, Florrie Darwin, struggled to polish my prose. To all these I express my appreciation. I take full responsibility for the inadequacies which remain.

1
The Themes of This Report

A — Introduction

In early 1980 I was asked by the Government of Ontario to review the system of workers' compensation in the province. It was decided that my Inquiry should be divided into two phases. The first phase focused on a number of controversial issues regarding the nature and delivery of benefits within the current system. What should be the structure and level of income replacement for workers injured on the job? How should these decisions be made by the Workers' Compensation Board (WCB) and to whom should they be appealed? These were the day-to-day concerns troubling both the clientele and officials of the current program. Legislatures in other jurisdictions in Canada and the United States have been grappling with these same issues throughout the Seventies. My first Report[1] which appeared in the fall of 1980 contained a comprehensive program for refurbishing the system in Ontario. The Government issued a White Paper[2] and draft statute in the spring of 1981, reflecting and refining a number of my recommendations. This package is now before a Committee of the Legislative Assembly.

The tacit premise of this entire exercise was that, for the foreseeable future, workers' compensation would remain a separate and distinct program designed to compensate disabling injuries which were identifiably occupational. But lurking beneath the surface of the current debate are a number of fundamental questions which invite scrutiny of this assumption. Can we readily tell whether someone has become disabled as a result of a job and thus is entitled to workers' compensation? Is there anything special about an occupational injury which justifies this distinctive program with its comparatively generous benefit levels? Rather than just compensate those employees who happen to be injured on the job, perhaps we should protect the worker against loss of income due to any disability, whatever its cause? But if we were to dismantle workers' compensation and submerge it in such a general disability plan, might this compromise another vital policy: the prevention of such injuries? What is the potential contribution of a compensation program to the reduction of industrial injuries and how can it better be designed for this purpose? These are the challenges to workers' compensation in the Eighties.

B — A Précis of the Report

This Report consists of a long and detailed review of some complicated problems of disability policy; problems which have preoccupied governments around the world. In the last two decades or so there has emerged an extensive empirical and analytical literature about these issues. I have tried to distill this learning into a manageable form and to supplement it with additional material regarding the situation in Ontario. Still, I am conscious that at points in this Report the reader might have some difficulty in fathoming the ultimate direction of my argument. I thought it useful, then, to provide this bird's-eye view of where I will be going.

I will begin by addressing the problem of industrial disease. This may aptly be termed the "soft underbelly" of contemporary workers' compensation. The original inspiration of the workers' compensation model was that we should do away with contentious and costly tort litigation about fault as the precondition for compensation of injured workers; and apply instead a simple and straightforward test of whether the injury arose out of and in the course of employment. By and large, this model has proven a great success in dealing with workplace accidents. Almost 99% of the claims falling within the legal jurisdiction of the Ontario Board are accepted with a minimum of delay and administrative cost.* The situation is entirely different when the disability stems from disease: particularly the multi-causal, long-latency disease epitomized by cancer. As we shall see, it is inherently difficult to tell whether a person's cancer is caused by an exposure to a toxic substance at work, or one in the general environment, or due to his own dietary, drinking or smoking habits. For a long time, this did not greatly trouble workers' compensation in Canada because there was little popular realization that the job was much of a factor in such diseases. By the Seventies, this age of innocence was over. The number of such disease claims has risen every year, nowhere more than in Ontario. But they regularly encounter major legal and medical hurdles in being fitted within the traditional boundaries of a program for compensating *occupational* disabilities. The result has been a highly controversial caseload, lengthy delays, extensive appeals, and an overall rejection rate of well over 50%: all in all, eerily reminiscent of the tort regime for industrial accidents in the early 20th Century.

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* The one important exception to this generalization is the permanent partial disability case, a perennially contentious area for workers' compensation. The problem presented by this claim typically relates to the amount of, not entitlement to, benefits. The most important recommendation in my first Report was for a two-part benefit structure for this claim: a lump sum award based on the degree of physical impairment and periodic payments to replace actual wages lost. This proposal has evoked the greatest controversy about the White Paper. The extensive American literature on this subject in the last several years testifies to the inherent intractablitiy of this problem within any compensation program.[3]

In Chapter 2, I shall provide an extensive diagnosis of why industrial disease presents such an intractable problem for workers' compensation, and I shall prescribe a number of measures to ameliorate the problem. But I must be candid from the outset and confess that I did not discover an overall cure for the ailment. Historically, the law of workers' compensation has required an absolute yes-or-no answer to the question of whether an individual disease is actually caused by an exposure on the job. Medical science gives us, *at best,* more-or-less evidence founded on statistical probabilities within larger groups. No matter what the statute may ordain, no matter how receptive its administrators may be, we cannot guarantee that a workers' compensation program can accurately and economically label disease claims as either occupational or non-occupational in origin.

This grave difficulty in answering the question posed by the law leads me to put a different policy question: why should we be interested in that answer? More particularly, what does the fact that a disease (or an accident) did or did not "arise out of and in the course of employment" have to do with the issue of whether its victim should have an alternative source of income while disabled. Actually workers' compensation is something of a misnomer for a program which compensates only for *workplace* injuries, not for all injuries which may strike a worker and prevent him from earning a living. As we shall see, only a small part of the accident and disease toll now fits within workers' compensation – e.g., less than 300 of the 18,000 fatalities occurring annually in the working age population in Ontario. There are 1,500 fatalities a year due to accidents on the highway, another 1,000 from accidents in the home, but only 200 from accidents on the job. As well, the workplace is responsible for just a fraction of temporary and permanent disabilities. These facts require me to address the current debate about whether Ontario should have a general disability plan, one which pays benefits because of the needs of the victim rather than the cause of the injury.

Unquestionably, a full appraisal of comprehensive disability protection will canvass a far broader range of concerns than this one problem of the awkward fit of industrial disease within workers' compensation. Indeed, since I began this second phase of my Inquiry, a Federal-Provincial Task Force has been established to consider a number of these dimensions. The ultimate judgment about whether Canada (or Ontario) should undertake such a step will naturally await the deliberations and judgments of this Task Force.

Still, consideration of a general plan has often been an outgrowth of an inquiry into workers' compensation, and this proposal was seriously advanced in a number of presentations to me. The reason is understandable. Workers' compensation was the first ingredient of the social insurance system in Canada.[4] As a mandatory public program to compensate employees who are injured on the job and unable to work, it still stands in stark contrast to the traditional legal regime of tort liability based on fault. Since World War II, a number of programs – public and private, federal and provincial – have been developed to meet the needs of the disabled who are left unaided by tort law. By and large, these tend to provide only minimal levels of protection, especially for the serious, long-term injury. Workers' compensation and tort law remain the two most prominent and most generous programs we have within their respective domains (for tort litigation, largely the motor vehicle accident). An inquiry into workers' compensation is, then, an appropriate occasion to consider the pros and cons of expanding this social insurance model, not just for automobile accidents but especially for the victims of disease.

My conclusion will be that to the extent that *compensation* is our aim, we are logically driven to embrace a general disability scheme which would displace tort liability and incorporate workers' compensation and other categorical forms of no-fault insurance. The priority in such compensation should be replacement of income lost due to serious, long-term disabilities; rather than insurance against income lost due to short term injuries and/or payment of damages for "pain and suffering". I shall also show why such a program of social disability insurance is both justifiable in principle and affordable in practice.

Still, there is a further matter to be dealt with. Compensation is not our sole concern in developing disability policy. We have other goals in this area; in particular, the *prevention* of injuries. Indeed, this is a long-standing premise of workers' compensation itself: the fact that it is entirely financed through industrial assessments of employers should provide a necessary incentive to the development of a less hazardous workplace. But if this premise is valid, it would seem to require the introduction of experience rating of individual firms, with rebates and surcharges based on how well or how poorly each has done in its own plant. A WCB proposal for mandatory experience rating of the Ontario program has been in circulation for the last several years. In my first Report, I endorsed this idea in principle, as did the White Paper. Even among its proponents, though, there remains considerable debate over the detailed design of such a program. A good deal of criticism of the idea has also surfaced among those who worry about its impact on the delivery of compensation, and who believe that we should rely on a separate program of regulation – under the Occupational Health and Safety Act – to achieve our prevention goals.

Chapter 4 is an extended review of this debate. After comparing the potential impact of regulatory standards under OHSA and market incentives under the WCB, I conclude that there is a strong case for the use of the compensation system for purposes of prevention (complementary with, not to the exclusion of regulation). I also offer quite a different blueprint for an experience rating scheme, one which should generate a good deal more incentive power than the one now on the table. To the extent that we continue to retain workers' compensation as a separate program, unquestionably there should be experience rating of the larger firms in the more dangerous industries. And if, in pursuit of the compensation objective, we were to adopt a general plan which took no financial account of the causes of workplace injuries, or the riskiness of different industries and firms, I believe we would lose a tangible force for a safer workplace.

Fortunately, we are not ultimately driven to a choice between compensation and prevention. Any disability insurance program (whether categorical or comprehensive) must have two distinct features: one for paying benefits, the other for raising the money. Only the second need be designed to motivate firms to invest in safety and health for their employees (or their customers, and others). As I shall show in the final Chapter, it is perfectly feasible to develop an integrated program which provides compensation according to the losses suffered by the victim rather than the causes of the injury; but finances these benefits partly through assessments on those whose activities create special risks of injury. (The rest of the funds would come from individual premiums which are based on the level of income that is being insured against disability.) I do not provide a detailed blueprint of such a scheme. That is not my role in writing this Report. But I do attempt to state and deal with the central issues raised by this proposal, and then to formulate the principles which should guide public policy towards disabled workers in the long run. In a sense, then, the ultimate challenge to contemporary workers' compensation is whether it will gracefully surrender its independent status and be incorporated in such a comprehensive system.

C — Conclusion

This Report is rather different in tone than was my first one – *Reshaping Workers' Compensation for Ontario*. It deals with fewer topics and makes fewer specific recommendations. But I have tried to provide a more sustained analysis of those fundamental issues which I do address, with reference to the pertinent research and literature. In any event, in neither phase of my Inquiry have I seen it as my role to collect a long laundry list of changes suggested by the variety of interest groups, to sift through them and select a number for my stamp of approval, and then to issue these with just a brief explanation for the reader. That kind of document simply is not consistent with the fact that the key decisions have to be made by the elected government of the day. The function of an independent, advisory report such as this is to make clear the alternatives which are available and to spell out the reasons which have led me to embrace one and to reject another. Only upon this footing can the government, and the public it represents, make an informed judgment about what is to be done. Certainly, the subject of occupational injuries – their compensation and prevention – is one which requires some tough-minded thinking about where we should be going in the longer run, rather than simply busying ourselves with a plethora of piece-meal changes in the present.

2
Industrial Disease and Workers' Compensation

A — Accident and Disease in Workers' Compensation

The Seventies was a decade of turbulence and creativity for workers' compensation in Canada. In one jurisdiction after another, the operations and policies of workers' compensation boards came under scrutiny and criticism by injured workers, trade unions, and employers. Provincial governments responded with commissions, inquiries, and reform legislation. In Ontario, this involved my own report - *Reshaping Workers' Compensation* - a government White Paper on the subject, and a thoroughly revamped draft statute. The primary focus of this sustained effort has been on *how much* in the way of benefits should be paid to the victims of workplace injuries, and through *what* administrative procedures. As we turned into the Eighties, a more fundamental issue loomed on the horizon: *who* should be entitled to compensation for a disabling injury. The source of this challenge at the very roots of workers' compensation is the industrial disease.

Logically speaking, the question of who is entitled to collect the benefits is the initial issue to be addressed in the design of any system for compensating the victims of personal injuries. Under the common law of torts, the answer was framed in terms of whether the plaintiff was injured as a result of the fault of the defendant. For a variety of reasons, the application of the fault principle to workplace injuries was conceded to be a miserable failure by the end of the nineteenth century. Early in the twentieth century, legislatures around the world responded to this serious social problem by cutting the Gordian knot: employer fault would no longer be the legal prerequisite to an injured employee and his family obtaining some financial redress for his disability. New statutory programs of workers' compensation were fashioned which paid a specific level of benefits for all injuries which arose out of and in the course of employment.

By and large, basing recovery on *causation* rather than *fault* proved a great success in handling *accidental* injury: the traumatic result of a specific incident on the job. True, there does remain some contention on the boundaries of the system. But in Ontario, for example, of the more than 400,000 claims which annually come within the legal jurisdiction of the Board (an injury to an employee working for an employer covered by this provincial statute), just over one percent are rejected on the grounds that the injury was not work-related. And on average, the WCB gets the cheque in the mail to the injured worker within 10 days from the time that the claim was made. Workers' compensation has become a highly effective program of mandatory disability insurance for Ontario workers, funded by payroll assessments of their employers with a minimum of dispute litigation and legal expense arising from the issue of entitlement. About ninety cents of each premium dollar collected from the employers (exclusive of rehabilitation and prevention costs) is paid out in benefits to injured workers; by contrast with common law tort liability under which approximately one dollar in administrative cost is required to deliver each dollar in disability benefits.[1]

When we review the performance of these same Canadian Boards in dealing with industrial disease claims, we seem to enter an entirely different world. The first striking fact is how tiny a share industrial disease is of the workload of the Boards. Table 1 on page 17 tells the story for Ontario.[2]

In Ontario, in 1980, the WCB allowed 411,476 claims, of which 7611 were for industrial disease: only 1.84% (a percentage which has risen gradually from 1.4% in the mid-Seventies). Occupational disease does constitute a higher proportion of lost-time claims – 3.6%. But if one excludes hearing loss cases, the victims of occupational disease constitute less than 2% of permanent disability awards.

The hearing loss example points out the true nature of the problem. What the Board labels as "industrial disease" includes such injuries as dermatitis, tendonitis, and acute reaction to fumes or poisons, as well as hearing loss. Together these amount to well over 95% of the 7500 industrial disease claims allowed by the Board each year (which, recall, is itself less than 2% of the total workplace injuries compensated by the Board). What most people would think of as a disease in the true sense of the term – a cardiovascular, cancer or respiratory condition which is seriously disabling or even fatal – amounts to a total of only two *hundred* allowed claims per year: or 0.05% of the claims granted by the Board for *accidental* injuries.

This contrast appears especially startling when viewed against the backdrop of general disease/accident statistics. We have three such measures. The first is hospital morbidity rates.[3] Accidents (including musculoskeletal conditions) constitute 13.5% of hospital stays and 15.8% of days spent in hospitals, whereas cardiovascular and respiratory disease amount to 28.1% and 38.8% respectively. The second indicator is Canada Pension Plan disability benefits paid for permanent total disabilities or fatalities; of which about 31% are due

Table 1

Distribution of Workers' Compensation Claims – 1980
Accidents and Disease

Total Claims	Total Disease	%	Lost Time	Lost Time Disease	%
411,476	7,611	1.8	165,221	5905	3.6

Varieties of Disease

Category	Allowed Claims	%
Burns	2,278	29.9
Toxic Fumes	1,850	24.3
Deafness	1,432	18.8
Dermatitis	782	10.2
Tendonitis *et al*	579	7.6
Misc. (Allergic *et al)*	338	4.4
Infection	143	1.8
Respiratory	80	1.1
Cardiac	65	0.8
Cancer	64	0.8
Total	7,611	100%

to accidents (including musculoskeletal conditions) while 43% are due to cardiovascular, cancer, and respiratory conditions.[4] Finally, and most striking, accidental deaths amount to less than 10% of the province's annual mortality toll, as compared to 73% from these three disabling diseases (42% from cardiovascular disease, 26% from cancer, and 5% from respiratory conditions). But under workers' compensation, 80% of the compensated fatalities are due to accidents, while only 20% are due to these diseases.*

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*It might be objected that these fatality rates are for the entire population, rather than for those of working age, and that the disparity between disease and accident is greatest for the 65 or older group. The fact is, though, that only one in 6 of the fatalities among Ontarians aged 20 to 64 is due to an accident, while 4 in 5 of the fatalities compensated by the WCB are accidental in origin.

The facts and figures I have just set out are drawn from Ontario. The problem they depict is not peculiar to this province. The ratio of industrial disease claims to accident claims, and the internal distribution of disease claims (as between dermatitis, tendonitis, hearing loss, *et al.*) is much the same in other Canadian jurisdictions. Indeed, as we shall see, the Ontario Board has long been the pace setter in compensating the serious disabling diseases, especially cancer. And Ontario (as well as other Canadian Boards) stands up extremely well in world-wide comparisons. The U.S. Department of Labor recently calculated an index of industrial disease awards relative to the size of the working population. Ontario tied for second place in the jurisdictions surveyed:[6]

Table 2

Sweden - 3.4
Ontario - 1.4
Belgium - 1.4
Switzerland - 1.25
Great Britain - .5
France - .4
United States - .3

In evaluating this issue, it is essential to appreciate that the source of the problem is *not* to be found in any specially restrictive features of the Ontario legislation or of Ontario Board policy. It lies deep in the challenge posed by a disease claim to any compensation program which is defined in terms of occupational causation.

B — The Dimensions of Industrial Disease: Especially Cancer

Needless to say, there is a ready objection to the suggestion that these statistical contrasts indicate a "problem" in the way workers' compensation handles industrial disease. Granted, disease is by far the largest source of morbidity, disability and mortality in the population as a whole. Perhaps, though, the simplest explanation for its tiny proportion of workers' compensation awards is the fact that the workplace is *not* a significant contributor to disease among employees.

This is a logically plausible argument. There is no easy empirical test of its validity, because we do not have an established external measure of the incidence of occupational disease.* By and large, the diseases which stem from conditions in the workplace are not distinguishable from those whose causes lie elsewhere, and even when the causal diagnosis can be made in principle, often it is not done in practice.

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*I take for granted that we cannot assume that the statistics generated internally from WCB adjudication are a valid measure. A contrary assumption seems to have been made by the medical staff of the Ontario Board in a recently published

In the last decade, though, there has been a growing realization that the state of public health is very much a function of the physical and social environment. This sentiment has helped produce sustained research about the extent to which different factors - including the workplace - contribute to different diseases. It is fair to say that the major policy concern spurring on this research is how we can *prevent* such diseases from occurring. But the studies and estimates which have been forthcoming are also available to appraise the adequacy of our programs for *compensating* the victims of the diseases which do occur.

The most heavily studied such disease is cancer, for reasons which are not hard to fathom. Not only is cancer a dreaded experience for anyone whom it strikes, but it is a major cause of death in the modern world. Of approximately 60,000 Ontarians who die every year, more than one in five (or 14,000) die from some form of cancer (second in number only to the victims of cardiovascular disease).[8] Unlike the other key mortality causes, the cancer rate has been rising steadily throughout this century; cancer is now the number one killer of people under 55. The "crude" cancer mortality rate in 1940 was 2413 Male deaths and 2624 Female deaths (11.5% and 14.5% of total deaths respectively), and it rose to 6980 M and 5677 F in 1976 (or 20.4 % and 21.5% of total deaths). Of course, to some extent there is a connection between these diverging statistical trends. As society develops mechanisms for the prevention and cure of other risks (e.g., heart attacks), and as overall life expectancy rises, the total exposure to the risk of cancer increases. In order to control for this factor, one has to calculate an "age-adjusted" cancer mortality rate. This shows a 30% increase in male cancer mortality (from 132 to 172 deaths per 100,000 males), but a decline of about 15% for females (from 141 to 119 per 100,000). This nets out to a modest overall increase in the cancer mortality rate, the average of male and female rates being 136.5 in 1940 and 145.5 in 1976.

More important for our purposes is what these statistical trends suggest about the contribution of the work environment. When one breaks the cancer total down by site, one finds that for males the

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piece in the Canadian Medical Association Journal on the dimensions of occupational cancer in Ontario.[7] They estimated that industrially caused cancer amounted to about 1% of lung cancers specifically and 0.34% of cancers generally in the province, on the ground that this was the level reported to and accepted by the Board in its program. As we shall see, the conclusion simply does not follow from this premise.

age-adjusted mortality rate has been very stable in the last 50 years for cancers of the bladder, intestine, and prostate; it has declined substantially for the stomach, but it has risen steeply for lung cancer. The last is by far the major factor accounting for the overall rise. Similarly, among women, cancer of the breast, cervix, ovary, uterus, and intestine has been stable or declining, while age-adjusted lung cancer mortality has risen sharply. It is fair to say that of the several bodily sites, the respiratory system is most likely to be affected by carcinogenic substances in the workplace. Those who suspect the workplace point to these long-term trends, add the fact that there has been a dramatic increase in the use of suspect chemicals in industrial production since World War II,[9] and conclude that much of recent cancer mortality is occupational in origin. But, as the sceptics point out, the incidence of smoking patterns affords a ready alternative explanation for the takeoff in lung cancer mortality, for the fact that the big jump in the female rate occurred 20 years after the male rate and, finally, for the fact that lung cancer mortality rates are now dropping for people under 45 (following the change in smoking habits in the late Fifties and early Sixties).

In the last five years there has been a serious effort to generate more precise estimates of the extent to which cancer can be attributed either to such personal lifestyle factors as smoking or diet – which presumably are the primary responsibility of the individual – or to such features of the general environment as air pollution or toxic chemicals in the workplace – which are under the control of industry or government. This issue leaped into the spotlight in the United States with the issuance in 1978 of an *Estimates Paper*[10] prepared by a group of scientists with the National Cancer Institute (NCI), the National Institute for Occupational Safety and Health (NIOSH), and the National Institute for Environmental Health and Safety (NIEHS). This document estimated that somewhere between 23% and 38% of future cancers in the United States – or a range of 80,000 to 150,000 cancer deaths per year – would be attributable to current or previous workplace exposures to just 6 established carcinogens. This estimate was grist for the mill in the deliberations of the OSHA and EPA about new federal standards designed to reduce such carcinogenic exposure in the future. It also provided telling evidence for those who sought to indict state workers' compensation for its dismal record in compensating the cancer victims of occupational exposures which had already occurred. Unsurprisingly, this estimate filtered across the border to figure prominently in the same policy debates in Canada (where we have no comparable empirical research of our own).

The Estimates Paper generated vigorous controversy among specialists in the field,[11] because among other things its numbers were so far out of line with the range of current estimates from a variety of respected scientists. The common premise of both sides is that about 90% of cancers are environmental rather than genetic in origin. A long series of regional observations and comparisons provides ample demonstration of this fact. It is also common ground that the "environment" includes not just physical surroundings but also cultural attitudes which shape habits of diet, drinking or smoking. But the specific contribution of the workplace to cancer has generally been felt to lie somewhere between 1 and 10% of the total.[12] Perhaps the foremost example of this genre of analysis is the elaborate review by Doll and Peto.[13] The latter break down the aggregate cancer rates by type and site (lung, bladder, stomach). As to each of these sites they make an educated guess about the percent which can be imputed to workplace exposure, based on all of the epidemiological studies which have been done. Their bottom-line conclusion is that some 17,000 of the 400,000 annual cancer deaths in the United States – or about 4% – are due to the workplace: a 7% share of the male cancer death rate and 1% of the female rate.

The Estimates Paper produced its strikingly higher figure by quite a different approach. Its authors selected six major and established workplace carcinogens: asbestos, arsenic, benzene, nickel, chromium, and petroleum products. The key epidemiological studies for each gave the risk of excess cancer for exposure to the substance. An occupational survey disclosed the number of workers employed in the industries in which these substances were used. Applying the excess risk ratio to the population sets from the survey, generated the estimate of future occupational cancers: i.e., 23-38% of the overall cancer mortality rate.* Some observers have asserted that this estimate is too modest.[14] The results of only six substances had been counted, leaving out such well-established carcinogens as radiation, vinyl chloride, cadmium, and coal tar pitch, let alone all the other substances whose malignant effects have not yet been discovered. Even for those substances which have been studied and were counted, it is possible that the excess risk has been calculated at too low a level, since epidemiological research always faces the prac-

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*Actually, a further refinement was required. For all the carcinogens except asbestos, the estimate was of the cancers to be expected among those *currently* exposed according to the survey (in the early Seventies). For asbestos, the risk ratio was applied to all of those *ever* exposed to asbestos at work since World War II: on the reasonable assumption that there is considerable turnover of workers in this industry. This meant that the prediction of the total asbestos-caused cancer was four to five times what was expected in current workplace exposure to asbestos. If the same turnover ratio had been applied to the other industrial carcinogens, the level of lung cancer attributable to workplace exposure to just these six substances would have been twice as high as the current total of lung cancer in the United States.

tical problem that it may not have located all of the cancer deaths among the groups studied. From this point of view, it would seem plausible to select the high point in the estimated range – perhaps 40%, or fully ten times as high as set by Doll and Peto through their more intuitive procedure.

However, the Estimates Paper has been subjected to withering criticism, especially of the basic logic of its argument. The problem is that the key ratio which it uses – the excess risk of cancer from exposure to a substance – is derived from studies of career workers in an industry who have long and intense exposure to very dusty plant conditions. These ratios were then applied to the entire population now employed in these industries who might have been exposed to the carcinogenic substance, with no verification that they actually had been exposed, let alone to what degree (especially in plants now designed with many more safeguards precisely because the risks are known). While it is likely that there is no absolutely safe threshold of exposure to asbestos, for example, everyone agrees that there is a strong relationship between degree of exposure and magnitude of risk. Yet the Estimates Paper took a risk ratio from a group of long-time insulation workers who had been closely exposed to asbestos in their jobs for decades, and then applied this factor to fully ten percent of the U.S. male population to generate their cancer estimates from this source. As Doll and Peto argue, this procedure is as illogical as it would be to infer that because it has been shown that 30% of long-time heavy smokers get lung cancer, therefore 30% of non-smokers will get lung cancer because they live, work, and breathe in the same room as smokers.

The debate continues to rage between those who worry that the contribution of the workplace environment to the cancer toll may be in the order of 20 or 30 or even 40%, and those who set it at the much more "modest" level of 4% or so. It is not necessary to my argument to express a verdict on this heated controversy, which surely reflects underlying political values as well as pure scientific methodology.*

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*I should add this observation about the scientific issues. While, by and large, it is not possible to identify and distinguish the cancer caused by an exposure at work (e.g., asbestos-caused as opposed to smoking-caused lung cancer), there are some so-called "signature cancers" which do permit some cross-checking of the Estimates Paper predictions. The best such example is mesothelioma, which is produced only by exposure to asbestos. One can count roughly the number of these malignancies now occurring, apply to this number the ratio of excess cancers of other types, derived from detailed epidemiological studies (e.g., the 1.5 lung cancers for every mesothelioma case found by Selikoff), and thence estimate the occupational component in the latter. We now have a number of close analyses of asbestos,[15] the most serious workplace carcinogen, and the consensus seems to be that workplace exposure accounts for somewhere between 1 and 2% of the annual cancer toll (rather than the 13-18% prediction in the Estimates Paper). A similar analysis by Doll and Peto[16] of the estimates of nickel-produced cancer, involving

The absolute number of occupational cancer deaths is more than high enough to warrant an urgent effort to clean up our work environment.**

The same sense of urgency should apply equally to the system of workers' compensation. Table 3[17] takes the Doll and Peto study of the dimensions of occupationally-produced cancer, by far the most detailed analysis, and applies to the Ontario cancer figures their percentage estimates of occupational cancer deaths at each site.

Table 3

Estimated Occupational Cancer Deaths
and
Workers' Compensation in Ontario

Cancer Site	Doll & Peto %Est. - U.S.	Ontario Calculation	Reported to WCB	Allowed Fatal
Lung	12.5%	425	68	(unspecified)
Larynx	2%	3	2	"
Nasal-Sinus	18%	10	14	"
Gastro-intestinal	10%	153	7	"
Bone	3%	2	0	"
Skin (not Melanoma)	10%	7	2	"
Prostate	1%	10	0	"
Bladder	8%	37	1	"
Leukemia	8%	56	1	"
Total		703	95 (*13,5%)	44% (6%)

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the ratio between lung and nasal cancer in the relevant epidemiological studies, showed that the Estimates Paper implied that nickel itself would be producing ten times as many nasal cancers as the total number now reported at this site in the United States. Reflection on these critical analyses leaves me dubious that one can affirmatively rely on the Estimates Paper for its radical hike in the projected dimensions of occupational cancer.

In that connection, one must not ignore this feature of the Population Attributable Risk Percent procedure used in the Estimates Paper. The fact that the latter attributed a certain portion of cancer to the workplace–20% or 40% or somewhere in between–does not imply that this is the *sole* cause of this proportion of cancer cases. Generally, cancer is produced by a constellation of causes operating at different phases in the development of the malignancy. For example, From this simple analysis one would conclude that toxic exposures in Ontario workplaces produced approximately 700 cancer fatalities a year in this province.* But the Ontario Board is now compensating only 65 cancer cases a year (66 in 1979 and 64 in 1980), of which about 40 a year are for fatalities (33 in 1979 and 44 in 1980). This is less than 1 out of 17 occupational cancer fatalities predicted by the conservative end of the scientific debate, let alone the one out of every 75 deserving cases predicted by those of more radical persuasion. Looking at lung cancer in particular, the Doll and Peto analysis would estimate 425 occupationally produced lung cancer deaths annually, but the Ontario Board compensates only a tiny fraction of them.

The financial dimensions of this gap are startling. The average total cost of a compensated cancer claim - medical aid, disability benefits, and survivor benefits - could easily be $250,000 in current dollars (especially once the benefits for surviving dependents are reformed as proposed in the White Paper). Simply to do a more adequate job in compensating a conservative estimate of occupational cancers - which is only one aspect of the overall industrial disease problem - would add nearly $150 million to the annual cost of compensation benefits in Ontario (or about 25% of the total current cost of workers' compensation). Another way of putting it is that 650 workers (or their surviving dependents) who fall victim to occupational cancer each year are being deprived of $150 million in benefits which the law had promised them.

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alcohol and smoking together are much more carcinogenic than is either by itself. Even starker is the multiplicative effect of smoking and asbestos exposure in producing lung cancer. The PARP approach logically assumes that the various causes should add up to a minimum of 100% of the cancer total, but there need not be a particular ceiling. And if we have reason to believe that work may be one significant element in the entire set of factors producing 20% of the cancer toll, for example, even though the dominant factor in many of these cases was smoking or diet, this fact is terribly important for public policy, if only because it may be much easier to control the workplace variable than it is to change the diffuse lifestyle habits of millions of people.

*I appreciate that this is a rough estimate. Among other things, the Doll and Peto percentages are based on U.S. cancer figures (although the epidemiological studies on which they draw come from countries around the world, including Canada). Thus these percentages cannot automatically be translated into Ontario numbers. But if one considers the composition of Ontario industry-with its uranium mining, nickel refining, steel mills, chemical plants, and asbestos manufacturing-it is fair to assume that U.S.-wide cancer estimates may well be modest for the province.

**One cannot perform the same types of calculations in the case of the other seriously disabling diseases, because these overall estimates of the causes of the disease are simply not available. We can be confident, though, that there is a significant shortfall in the level of workers' compensation for these diseases as well. For example, about 3,000 Ontarians die annually of non-malignant respiratory disease, making it one of the five leading causes of death, and one of

This is one measure of the shortfall of workers' compensation in Ontario. It is worth reminding the reader of the point made earlier: in dealing with occupational cancer (and other serious industrial diseases), the Ontario board is the best in Canada (which, as a whole, is far ahead of the United States). The Ontario Board was the first in Canada to compensate workers for any type of lung cancer (in 1950 for coal tar exposure), the first to compensate for lung cancer among foundry workers, for asbestos-caused lung cancer in the absence of clinical asbestosis, for laryngeal and gastrointestinal cancer among asbestos workers, and so on. It is continually in touch with and prepared to adopt new judgments and policies from other jurisdictions. The statistics testify to this attitude: through 1980, the Ontario Board had compensated a total of 547 cancers, all the other Canadian Boards less than 250 (Quebec being next with 137, the British Columbia Board with only 18). In depicting the inadequacies of the Ontario Board's response to the challenge of industrial cancer, then, we are seeing the results of the most receptive of these programs.

C — Statutory Obstacles

Of course, it is not enough to understand the dimensions of the problem. Our objective is to change the system so as to solve the problem. But intelligent reform requires a clear-eyed view of the actual causes of the difficulty within the current program. The first possibility is the statute itself.

Industrial disease has historically been treated as the legal step child of the workers' compensation regime. Only gradually has this badge of second-class status been removed. Even yet the process is unfinished, as exemplified by the fact that under the current statute the basic condition entitling a person to benefits is a "personal injury by *accident* arising out of and in the course of employment" (S.3 (1)). Industrial diseases have a provision of their own, tucked away at the back of the statute, under which, ironically, a person disabled as a result of the disease is "entitled to compensation as if the disease was a personal injury by accident" (S.122 (1)).

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only two (along with cancer) whose mortality rate is rising. This is also one of the leading causes of hospital morbidity in the Ontario population. At the same time there is a growing accumulation of evidence, set out in detail in Dr. Yassi's Report, to the effect that workplace exposure is a significant contributor to these diseases, especially in the more dust- or fume-laden environments. But only about 115 compensation claims are allowed each year for chronic respiratory diseases, the vast majority of which are for the pneumoconioses (such as silicosis or asbestosis). While chronic obstructive lung disease is the major contributor to mortality and morbidity from respiratory disease generally, only 28 compensation claims were allowed for these in 1980, of which only 5 were for chronic bronchitis.

The reason for this roundabout statutory route is that industrial diseases have always been subject to special definitions and limitations. Under the original statute enacted in 1913, "industrial disease" was confined to the six diseases listed in Schedule III of the Act, along with corresponding industrial processes which were presumed to be their respective causes. Gradually the list was expanded by the legislature to encompass a total of 15 diseases, although typically this was done rather gingerly.* Silicosis and the other pneumoconioses were added in 1926, with a condition of five years' exposure inside Ontario (for the same reason). Cancer was first named in 1932 for workers exposed to coal tar, but the intention was to include only skin cancer which was made explicit by the legislature by 1942. Equally important, throughout this period the worker was disentitled to recovery for an industrial disease unless the claim was made within 12 months of his exposure at work in Ontario. This condition was first found untenable in the case of silicosis, for which it was raised to two years in 1933 and to five years in 1942. In 1944 the time bar was dropped entirely, in recognition of how inapt such a statute of limitations is for progressively developing and slow-to-manifest diseases such as "lead poisoning, phthisis, silicosis, cancer, and malignant cancers of the skin."

Not until after World War II did Ontario dispense with the hurdle of requiring a legislative judgment about whether a particular disease could be attributable to the workplace. The Board was given the authority to add diseases to Schedule III and thus give workers the benefit of the statutory presumption (S.122(16)). As well, added to the statute in 1947, was a generic definition of industrial disease which included not only the scheduled diseases but also "any other disease peculiar to or characteristic of a particular industrial process, trade, or occupation". This permitted the WCB to develop policy guidelines for a variety of new diseases, one key early illustration being the Board's path-breaking decision (in 1949) to compensate lung cancer from coal gasification works.**

The redraft of the Workers' Compensation Act which followed the government's White Paper will remove all the remaining badges of second-class status for industrial disease claims:

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*A good illustration is the 1917 Amendment which added "miner's phthisis" to the list, but inserted a requirement of 3 years' residence in the province in order to avoid "the danger of Ontario being made a hospital so to speak by workers coming in from other places in advanced stages of the disease and getting pensions here".

**The Board's inclination to use this general statutory provision to develop detailed criteria for compensating occupational cancers, rather than relying on the Schedule III approach, has generated a great deal of controversy and will be considered later in the text.

(i) The key to benefit entitlement will be industrial "injury" rather than "accident", and this explicitly includes "the result of industrial disease." A worker suffering from a disease will be able to take advantage of the general presumption in favour of a claim (S.6(7)).

(ii) The generic definition of "industrial disease" is broadened to include not just diseases *peculiar* to an industrial process but also those which result "from exposure to a substance *relating* to a particular process."

(iii) A compensable disease will now include "a condition which is a precursor to an industrial disease", thus explicitly entitling the WCB to compensate workers whose medical conditions are such that the Board feels they should be removed from further exposure to the substance.

(iv) The statutory presumption for scheduled diseases is to be available to any worker "who at or before the date of the injury was employed in the process mentioned...", not only workers still employed "at or *immediately* before...".

In redrafting a workers' compensation statute it is important to specify the legislative intent that the victims of industrial disease receive the same consideration as the victims of industrial accidents. We should be under no illusion that changing the words on the statute books is sufficient to achieve this treatment in practice. The important legal barriers were removed back in the Forties. The current Ontario statute gives industrial disease claims as favourable a reception as any in Canada. To the extent that obstacles lurk in the current statute, the Board has shown itself adept at overcoming them. Infectious diseases such as hepatitis have regularly been compensated, although one would hardly label them *peculiar* to a particular industrial process. Even workers who have shown clinical symptoms of a disease, but who were not yet at the stage of actual disability, have been given compensation in order to facilitate their removal from a workplace before serious damage occurred. The source of the gap which we saw earlier between the current level of occupational cancer (or other disease) and the number of cases actually being compensated is not to be found on the face of the statute itself.

D — Procedural Hurdles

If the workers' compensation statute is not the real cause of our problem, might it be the procedures used in handling workers' compensation claims? This is often identified as a major source of the difficulties in the United States under its essentially private-law model of workers' compensation.[18] Just as in Canada, the American legislation says that the employer's liability for its employee's injury is strict, based on occupational connection rather than fault. But American employers typically protect themselves against this liability through a private insurer (or they self-insure). Unless a claim is clear and accepted voluntarily, the injured employee must pursue recovery through an adjudicative proceeding, either in court or in front of an administrative tribunal (if the latter, always with ample scope for judicial review). For the claimant in an occupational cancer case – where there is always room for scientific debate, and the financial stakes are high – the chances are strong that the claim will be contested and the road to recovery will be long and arduous.

The employee must first hire a lawyer to assemble both scientific evidence about the disease and exposure evidence from the workplace necessary to sustain a claim. Either the claimant must have the resources to pay for the lawyer, which is unlikely, or the lawyer must be willing to accept a contingent fee out of the prospective award, one which may be subject to statutory limits in the case of workers' compensation. This evidence must then be presented to a judge, jury, or administrative tribunal in the artificial format of a trial-type hearing, with the scientific judgments having to be made anew in each case, and then defended on appeal. It is no wonder that such a tiny proportion of occupational cancer cases are ever made, let alone won.*

Anyone who views these procedural factors as the chief hurdle to compensating industrial disease cases in the United States would have his eyes opened by the comparative lesson from Ontario.[19] The Ontario WCB administers a comprehensive public insurance fund, and thus has no profit motive to fight valid claims in order to force compromise settlements on the worker. It will conduct an active investigation on any claim which is initiated by an employee filling out a simple form on his own or with the assistance of his doctor, his union, or his employer. There are no longer any artificial time limits for launching the claim; indeed, the Board never treats a claim which it has rejected as *res judicata* in the face of changing scientific knowledge about industrial disease. Rather than forcing the employee to hire a lawyer to positively marshall the evidence in the difficult cases, the Board takes it upon itself to conduct the necessary review of the medical literature. It occasionally sponsors epidemiological studies of its own (or in tandem with the government), and can call on its own investigators or government hygienists to develop the evidence of workplace exposure. Once judgments have been made about a particular process or workplace, these will be expressed in general policy criteria which will govern future cases without the need for later claimants to replough the same ground. Indeed, the Board will even mount an outreach program to inform Ontario doctors of newly discovered hazards to which their patients may have been exposed, and, on occasion will even try to contact the exposed employees (through their present or former employer or union) to tell them that they may have a valid compensation claim.

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*The problems I have noted are essentially the same as would be encountered by someone in Ontario who wanted to launch a common law tort action for a cancer caused by a non-occupational source: perhaps the manufacturer of a carcinogenic food product or the emitter of an environmental pollutant. The practical procedural obstacles are high enough, or so I was told by the top tort litigators in this province, that there has never been such a claim in the Ontario courts.

I do not mean to paint too rosy a picture of workers' compensation procedure in Ontario. While each of these features operates in principle, there are unquestionably deficiencies in practice, as our research has disclosed. But this type of procedure, warts and all, would be viewed as a utopian dream by reformers of workers' compensation in the United States. And it works remarkably well for the general run of accident claims in this province. I have already noted that the WCB rejects only 1% to 2% of claims made on their merits, and gets the first cheque in the mail in a median time of ten days. Perhaps a fairer comparison for these disease cases would be the extended disability claims, which are processed within a median period of about five weeks, with a rejection rate of just 15% (for fatal accident cases). But the same Ontario Board[20] takes about seven months to make and communicate a decision about a cancer claim and rejects three out of every five cancer claims made. The internal review procedures of the Board – which comprise both scrutiny of potentially adverse decisions by the Claims Review Branch before the decision is made, and a two-step appeal process if the adverse decision is confirmed and issued – regularly overturn more than half the decisions rejecting accident claims. But in our analysis of industrial cancer cases we did not find a single rejection which was altered on review or appeal.

In sum, the Ontario worker who believes he is suffering from an occupational disease does not face the bleak prospect of litigation, employer appeals, and legal fees as does his counterpart south of the border. But the meagre chance of ultimate success has had much the same depressing effect on the possibility that someone will actually make the claim. The total number of cancer *claims* made to the Ontario Board has never amounted to more than 100 in any one year; less than one-seventh of what Doll and Peto conservatively predict to be the annual total of occupational cancer deaths in the province. And, to reiterate my earlier observation, the Ontario WCB is the most receptive of any Canadian Board to occupational cancer claims.

E — The Intractable Character of Industrial Disease

The foregoing points to another explanation. The intrinsic features of an industrial disease claim, by contrast with an industrial accident, make the former inherently more difficult for any system of workers' compensation to handle, irrespective of the legal or procedural shape which the program takes.[21]

A typical accidental injury follows immediately on the mishap taking place in the plant. When a worker falls, or is cut, or is involved in a collision, the occurrence of the injury is visible to the naked eye. Simple common sense suffices to make the occupational connection. By contrast, if a worker is exposed to a toxic substance such as asbestos, coke oven emissions, or radon daughters, a malignancy may not manifest itself for ten, twenty, or thirty years. In the meantime, what happens inside the worker's body is invisible and little understood.

Nor can one tell, by examining the cancerous growth itself, what kind of exposure may have produced it. There are some malignancies whose specific cause is fairly well-established: mesothelioma and asbestos, angiosarcoma and vinyl chloride. By and large, though, almost all cancers (as well as cardiovascular or chronic obstructive lung diseases) can be produced by a number of sources, some inside and many outside the workplace: lung cancer from smoking or coke oven emissions, leukemia from therapeutic radiation or benzene, liver disease from alcohol or chlorinated hydrocarbons, bronchitis from smoking or sulphur dioxide fumes. When the pathologist examines the diseased tissue, he will not be able to tell which came from which. Indeed, the current theories suggest that many of the cancers are the result of a conjunction of factors. some occupational and some not, each operating at different phases in the initiation or the promotion of the disease. The ultimate judgment about cause and effect must rest, then, not on common sense appraisal of facts visible to the eye, but upon delicate and sophisticated scientific theories about the cellular structure of the body. This presents difficult problems for those trying to administer fairly a system of compensation for only work-based disabilities.

The first problem is the still-controversial character of the science of cancer. Ethical restraints preclude controlled, laboratory-type experiments on live human beings, e.g., deliberately exposing a selected group of workers to a potentially toxic substance and then following this group for a decade or two to see whether a statistically-significant excess number of cancers was produced (in comparison with a matching control group). All the scientist can do is try to find and follow a group of workers who happened to have been exposed to a substance (which now appears to be dangerous) and to see what the results were. The problem with such "natural experiments" is that it is always difficult to isolate the impact of the substance under examination from other possible causes of cancer. Reasonable scientific assurance requires a number of confirmatory studies whose data can be sifted and compared for these confounding factors. But any one such epidemiological study takes a great deal of resources and even more time (to make sure that all of the cancers occurring in the group are identified and counted). By the time a sufficient number of studies have accumulated to produce a scientific consensus, as in the case of asbestos, it may be far too late to help many victims.

That prospect is obviously intolerable to those responsible for the protection of workers, consumers, and all those who live and breathe in the general environment. Hence the reliance in their prevention programs on laboratory experiments on animals - subjecting rats for a short period of time to doses of a suspect substance far in excess of what a human would ever be exposed to in a lifetime. The saccharin case illustrates how complex and how controversial is the reasoning through which the findings from these kinds of animal experiments are translated into judgments about carcinogenicity for humans.

But the compensation system must make a far more difficult judgment than must a prevention system. It is sufficient for the latter, to justify a health standard, that there be some epidemiological evidence that some number of people are exposed to some risk of cancer. Indeed, even evidence of malignancy induced in rats in a highly artificial experiment may be considered warning enough to take action to guard the public from probable harm, especially if the safeguards are readily feasible. But workers' compensation does not seek (at least directly) to guard an indeterminate number of people against an indefinite (but greater than zero) risk of cancer in the future. Rather it seeks to identify and to compensate those individuals whose cancer was in fact produced by a workplace exposure in the past. We may feel that we have enough evidence to suspect the carcinogenic quality of an industrial process in principle. But this does not mean that we can safely conclude that this individual claimant actually suffered his cancer as a result of his exposure to this process.

There are two gaps in the argument. The first is practical. Epidemiological studies may have been done in one (or more) plants among groups of workers whose exposure to different levels of emissions was checked and verified. How do we know that the same relative excess risks are valid in different plants, among groups of workers who vary in age, background, and life style, who may have been exposed to very different levels and under quite different conditions: or, worse yet, whose past exposure is unknown because nobody thought to record it until the publication of studies showing that there was a problem.

The more profound problem is logical in character. Take the Dofasco Foundry Study for example.[22] A group of 435 workers was followed for a period of 10 years. A total of 8.4 cancers were predicted in a group of this type. In fact, 18 cancers developed, roughly double the number expected. This excess rate in a sample of this size was enough, presumably, to warrant the statistically-confident judgment that the foundry process was carcinogenic, requiring steps to reduce the risk to the current work force (if this had not already been done). But what does it tell us about the cancers which occur to Dofasco workers who have already been exposed? No more than that there will be one extra cancer from exposure to the foundry operation for every one which this work force would have experienced in any event. But this statistic does not identify for us which is which. Yet the WCB is charged with the legal responsibility of distinguishing those cancers which did and those which did not "arise out of and in the course of employment". The inherent and intractable problem posed by industrial cancer to workers' compensation, then, is that the law contemplates an absolute yes or no judgment about the individual case - was this cancer actually produced by a workplace exposure? - but even the best epidemiological study and exposure evidence (if we are lucky enough to have these) give us only statistical probabilities about the group as a whole.

F — How Should Workers' Compensation Approach Industrial Disease Claims?

1. Case-by-Case Adjudication or General Standards?

The inherent difficulty in identifying the specific cases of cancer (or other disease) which are attributable to the workplace is not simply a matter for scientific regret. It is the source of real human hardship. Every year many hundreds of industrial disease victims or their families are unable to substantiate the claim for the workers' compensation benefits which Ontario law has promised them in principle, and which they so badly need in fact. The growing consciousness of the nature and dimensions of industrial disease has led to insistent calls for reform which would help close the gap between the program's promise and its performance.

What kinds of changes would be responsive to the call? It is not my intention to make specific recommendations about the criteria which should be used by the WCB in evaluating particular industrial disease claims (e.g., lung cancer among uranium miners). I do not pretend to have the scientific competence to pass judgment on the scientific issues at this level.* What I will do is clarify the principles of compensation policy which are implicit in these judgments and sketch a somewhat different legal and procedural framework to improve the performance of workers' compensation in identifying occupational disease.

We should be under no illusion, though, that an industrial disease will ever be anything but a conundrum as long as we try to fit it within a program which requires a judgment about the *cause* of the disease. The only sure "solution" to the puzzle would be to absorb workers' compensation into a comprehensive disability insurance scheme. Rather than concern itself with what caused the disease, such a compensation program would focus on the impact of the disease, the needs felt by its victims, and what can and should be done by way of monetary reparation. By definition, the easiest way to insure that all victims of occupational cancer, for example, secure compensation for lost earnings is to extend this benefit to victims of any cancer, whatever its source.

But any such general disability scheme raises major issues extending far beyond reform of workers' compensation itself, issues which I shall tackle in the next Chapter of this Report. Not surprisingly Ontario employers are dubious about the ability of the economy to handle such a new social benefit, especially at the current time. Interestingly, many trade unions and injured worker groups were also concerned about the implications of comprehensive disability compensation – e.g., for the level of benefits or the source of financing – and wary about abandoning workers' compensation as a separate and distinct program paying generous benefits financed through assessments on employers alone. But this means that any ideas for changing workers' compensation to make it more adept at recognizing and compensating those diseases actually caused by the workplace must also respect the limits of such a program. The law and process of workers' compensation must give it a reasonable chance at filtering out those diseases not attributable to the workplace and seeing that these cases do not draw on a benefit program financed by employers alone.

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*However, Dr. Yassi has assembled and analyzed a vast amount of material which I expect will contribute to illumination of the current issues in Ontario. I anticipate as well that the Royal Commission on Asbestos will be making specific proposals regarding that highly-contentious substance.

Of course, workers' compensation, like any human enterprise, is inherently prone to error, especially in trying to bridge the logical gap between epidemiological statistics and individual cases. Inevitably there will be claims in which a person is allowed compensation even though his cancer was not actually the result of his work. There will also be cases where a person is denied compensation even though his cancer was in fact due to exposure at work to a toxic substance which no one has yet suspected is carcinogenic. The assumption of the law, in principle, is that the second kind of error (in the jargon of decision-making, a false negative verdict) is worse than the first (a false positive verdict). In simple human terms, it is worse that an individual worker and his family be denied the income maintenance they need and to which they are entitled, than that the general fund should pay out one extra claim which, as later scientific evidence shows, could not really have arisen "out of and in the course of employment". The proposed language in the new Ontario Bill is specific: whenever there is doubt about any claim, and the probabilities are equally balanced, that disposition is to be made which is more favourable to the claim. But this statement of the burden of proof requires a fair balance in the relative probabilities. It would not permit the WCB to compensate *all* victims of cancer wherever there is any chance, no matter how speculative, that this was due to workplace exposure. The latter would be a way of guaranteeing that all deserving occupational cancers were swept into the net. But it would do so by tacitly moving near a comprehensive scheme, but only under the guise of workers' compensation, and thus without addressing the issues of principle involved in the design of a general disability scheme.

With these prefatory remarks, what can be done that is compatible with retention of a distinct workers' compensation program? One approach would be simply to treat industrial disease cases as we now treat industrial accident claims. All artificial definitions, provisions, and obstacles in the statute would be stripped away, and every claim would be subject to the same legal inquiry: did the injury and disability in question "arise out of and in the course of employment?" Within this general umbrella language, the facts about any particular disease claim would be assembled, analyzed, and adjudicated, with the WCB extending to the claimant the benefit of the burden of proof in any case where the probabilities were closely in balance.

Unquestionably there is appeal in this simple, straightforward approach to the problem (the one which has been adopted in

Manitoba, for example). After all, as we have seen, accident claimants have never encountered the difficulties experienced by disease victims in establishing the occupational connection required by the law. Perhaps the reason for the uphill struggle of industrial disease claimants is that the tacit function of special definitions of disease – whether contained in the Act and its Schedule or in the WCB's policy guidelines – has been to confine compensable diseases to only those cases where there was strong and incontestable evidence of occupational connection, and where the dimensions of the burden were predictable. After all, in the 35 years since the enactment of the general definition of industrial disease in the Act, the Ontario Board has compensated only 10 cases of occupational cancer in situations not addressed by the Schedule or by policy guidelines, even though the latter still cover only a fraction of the internationally recognized carcinogens.

Although I sympathize with the urge to treat diseases in a way which is legally symmetrical with accidents, this would be a mistake, and be counterproductive for the disease claimant. Whatever the law might say, the fact is that important real-life differences exist between the typical traumatic accident and the long-latency disease. As I explained in the previous section, the intuitive, common sense evidence which is sufficient to establish the workplace connection for someone who has a broken leg, for example, which he says is due to falling off a ladder at work, is simply not available for the victim of lung cancer, which might have been initiated by any one of a number of insidious environmental sources operating long ago. If, as is true in the accident case, every cancer claim were to be treated on its own merits, then the necessary analysis of the scientific literature and investigation of the industrial process would have to be undertaken anew for each claim, always subject to challenge from the employer. Not only would this be a needless waste of the resources of the workers' compensation system (to the detriment of other claimants), but it would erect far too high a barrier for individual claimants, even where there should be no doubt about the occupational relationship. Ample testimony to the latter fact can be found not only in those American jurisdictions which use the case-by-case approach in their workers' compensation programs, but also in Ontario tort law which now gives the same treatment to the person whose cancer was triggered by exposure to a carcinogenic product – and thus is actionable at least in legal theory.

Thus, rather than have the Board rely simply on particularized adjudication of industrial disease claims under the umbrella of a broad statutory definition, I believe it is much more sensible to develop intermediate standards for different types of diseases and workplace exposures, under which the Board can appraise individual claims.* This legal technique invites the WCB to take the initiative in the area, to marshall its resources for a systematic review of a newly appreciated cancer problem, for example, even to commission and fund the kinds of research which may be required; and when the Board reaches a conclusion that there is an occupational connection, to express this in a general presumptive standard. Once this task has been completed, all future cancer victims who satisfy the standard will be able to rely on it for a comparatively quick, easy, and routine grant of their claims.

2. Statutory Schedule or Policy Guideline

I found a widespread consensus in my inquiry in Ontario that general presumptive *standards* should continue to be the basic tool for evaluating industrial disease claims. But there is sharp debate about the form which these standards should take. In Ontario workers' compensation, they have traditionally been of two types: a statutory schedule or a policy guideline. While listing diseases in Schedule III of the Act was the historic route to compensation for industrial disease - including skin cancer from exposure to coal tar or pitch - more recently the WCB has strongly favoured the use of policy guidelines specifying which diseases will satisfy the generic definition: "disease peculiar to or characteristic of a particular industrial process." Almost all occupational cancers are now adjudicated according to such policy criteria. In the course of my inquiry, a number of unions and injured worker groups pressed for a return to the Schedule approach as the means of closing the gap between the potential scope of industrial disease and the cases now actually being compensated.

The real difference between the two does not lie in their legal *form*. While the Schedule is attached to the Act, as a practical matter the Board would make the decision about which diseases are to be included in it; and the Board's policy guidelines are now almost as accessible to interested parties as is the statute itself.

The real difference is in the substantive *content* of the two types of standards. The Schedule consists of two columns, one for a description of the disease, the other for the industrial process which gives rise to it. For skin cancer, for example, Column I lists "epitheliomatous cancer...", and Column II cites "handling or use of tar, pitch, bitumen, mineral oil or paraffin or any compound, product or residue of any of these substances." If someone with skin cancer shows that he did use these substances at work, he is presumed to suffer from the industrial disease (S.122(9)). By contrast, the policy guidelines issued by the WCB are far more specific in their criteria. For example, while the Board has accepted that lung cancer among coke oven workers is an industrial disease peculiar to and characteristic of the steel industry, its guideline goes on to require minimum exposure periods for topside work (five years), mixed side oven/topside work (ten years), and side oven work (fifteen years), as well as minimum ten-year inception or latency periods between first exposure and appearance of the lung cancer, and maximum cessation periods between the last occupational exposure and the appearance of the cancer (15 years for smokers and 20 years for non-smokers).

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*Lest there be any misunderstanding, let me make clear now that I do not envisage this as the sole route to compensation for disease victims, to the exclusion of the general residuary definition. Indeed I believe that the Board should make much more extensive use of the latter statutory provision than it has hitherto done, in a manner which I shall explore later on.

Not all policy guidelines are as restrictive as this, although the criteria for accepting lung cancer among foundry workers are even more so (with 20-year minimum exposure and 20-year minimum latency periods, along with 15- and 20-year cessation intervals for smokers and non-smokers respectively). Guidelines for asbestos-produced gastrointestinal cancer have a qualitative exposure requirement - a "clear and adequate history of exposure...of a continuous and repetitive nature...a manifestation of the major component of the occupational activity" - to go with the quantitative latency requirement - "a minimum interval of 20 years since first exposure." The current guideline for lung cancer due to radon gas and radon daughters in uranium mining requires a minimum 10-year latency period, and then the evaluation of such factors as geographical location, duration, and intensity of exposure, smoking history, year of entry into mining, previous underground exposure in non-uranium mining, age at start of exposure and age when lung cancer first appears. The least restrictive guideline is that for lung and sinus cancers from exposure to the nickel smelting process at International Nickel, which now requires only a minimum exposure of either 3 or 6 months (depending on the smelter in question).

It is obvious, then, that the typical policy guideline constitutes a much stiffer hurdle to establishing an occupational cancer claim than does an entry in Schedule III. While claims which do not meet these explicit criteria are "to be individually judged on their own merits", and "the benefit of reasonable doubt applies" in favour of the claim, the fact of the matter is that it is unusual for the Board to accept a claim which does not meet its guideline.* It is natural, then, for those who want to expand the level of compensated industrial disease to advocate elimination of these restrictive criteria; thus permitting any worker who develops lung cancer, for example, after exposure at work to asbestos or coke oven emissions to receive workers' compensation as a matter of course. Buttressing this general policy objective is a strong body of scientific opinion that there is no absolutely safe threshold requirement and that latency periods vary widely both up and down; thus casting real doubt on the precise number selected by the Board.

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*One important exception to this which we encountered was the exposure requirement in the old guideline for lung cancer among uranium miners. The Board regularly granted claims which did not satisfy this factor until finally it dispensed with a precise numerical requirement in favor of the qualitative judgment noted above.

To some extent the latter argument misconceives the nature and use of a *general* standard in the *compensation* context. My own reading of the scientific literature persuades me that the safest assumption is that there is no level of exposure to a carcinogen which is absolutely safe. Suppose, then, that for a particular work place in which 10 cases of lung cancer would be expected normally, the dose-response curve from an epidemiological study suggests that one more cancer will develop from a low level of exposure to a toxic substance. This finding would be a very good reason for establishing a health standard designed to *prevent* any such increase in the cancer risk. But it would not be a good reason for the WCB to establish a legal presumption that any and every lung cancer developing among workers previously exposed to this industrial process was in fact caused by this industrial exposure. The fact is that 10 out of the 11 cancers experienced by this group of workers would have appeared in any event.

The function of a general standard in a compensation program is to give to diseased workers who satisfy it routine acceptance of their claim without requiring specific scientific proof that the disease came from workplace exposure. The scientific literature tells us that there is some marginal increase in risk even at very low levels of exposure, and that some cancers can appear very early or very late following this exposure. But it is also clear that the level of excess risk rises with the level of exposure (either in time or intensity), and that most cases of the disease will appear within certain time frames. When the WCB formulates a standard which, realistically, should provide automatic compensation to any worker who satisfies it, it is responsible for sifting through the relevant literature to find the point at which it becomes more probable than not that any one cancer will be due to workplace exposure. In principle, at least, that point is reached when the excess risk is *double* the normal background risk.[23]*

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*The burden of proof as formulated by the draft Act, provides that "where there is doubt on an issue and the disputed possibilities are evenly balanced, the issue shall be resolved in accordance with that possibility which is favourable to the

While it is important that the Board, in formulating general policy standards for compensating disease claims, draw a reasoned and responsible line, it is not essential that this be a scientifically demonstrable line. Understandably, the decision-making process regarding compensation of industrial disease tends to be dominated by doctors and scientists. But it is important to appreciate that while the *question* of whether a particular cancer stems from the workplace is scientific in character, often the *answer* cannot yet be derived from science.[24]

For the scientist, the ideal footing for his answer would be an epidemiological study of the effects on humans of exposure to a suspect substance, rather than just laboratory bioassays of its effect on rats. He would prefer that these studies be conducted on workers in the plant in question, or at least in a plant within the region which uses a comparable process. The study would need a sizable group of subjects with known and measured exposures, matched against a valid control group and then followed long enough to pick up almost all cancers occurring in both groups. The scientist would also insist that the results satisfy standard tests of statistical significance about the causal connection. Given all of these factors, the scientist would be quite prepared to render his verdict, and the rest of us happy to follow it.

Unfortunately, the lack of strong scientific evidence in the vast majority of cases gives rise to the difference between the scientific and the compensation perspective. The scientist can answer that we do not know yet, that we do not have enough data, that we need to await more and better studies. This is the responsible reply dictated by the canons of the scientific method. But the WCB does not have the luxury of saying that it doesn't know, that it won't commit itself. The Board has to decide the case one way or the other. If it decides not to compensate the claim, this implicitly renders a negative verdict on the issue of causality. However, the fact that the scientific evidence is unclear or debatable no more supports the negative than

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worker" (S.6(7)). If an epidemiological study indicates that the excess risk of cancer among a group of workers is three-fold, this means that for every cancer produced by an outside cause, two were due to exposure at work. Assuming a plausible latency period, chances are 2 to 1 that each cancer claim from among these workers "arose out of and in the course of employment" (assuming no specific evidence to the contrary). On the other hand, if the excess risk was just 1.5, chances are only 1 in 3 that any single cancer was due to the job. I do not mean to imply that adjudication of industrial disease claims can ever be reduced to a matter of simple mathematics. As I shall describe in the text, there will always be practical difficulties in translating the scientific studies into usable compensation standards. But it does appear that certain of the existing Board guidelines–e.g., the one relating to coke oven workers[23]–would bear re-examination in light of this analysis.

it does the positive conclusion on this issue. In this setting the WCB must frankly recognize that the scientific material leaves the issue unsettled, and that an informed but pragmatic judgment must be made about which way the available evidence seems to point.

Let me offer a hypothetical example. Suppose the Board has received claims from several cancer victims who are exposed to a chemical while at work at an Ontario plant. There is some laboratory evidence of the carcinogenicity to animals of the substance. However, the Board's review of the literature reveals that there has been only one epidemiological study of this comparatively new industrial chemical. This study was conducted at a plant in another country with the same process but with arguably different levels of exposure. While there was positive evidence of an excess cancer risk, the small sample size meant that the results did not pass the .05 level of statistical significance (which means that there is 1 possibility out of 20 that the results were due to chance).

My impression of the practice of the Ontario Board is that it would be extremely reluctant to grant claims such as these, let alone to formulate a policy guideline which would facilitate making and adjudicating such claims. The Board doctors would advise that further studies were needed, preferably in Ontario, studies which would be above and beyond scientific reproach. Perhaps the Board officials would console themselves with the thought that these claims could be re-opened and benefits paid if and when firm scientific findings materialized.

In my view this approach is not supportable. In the first place, the possibility that the heirs of cancer victims may collect workers' compensation benefits years or even decades in the future is no substitute for granting the claim now to the diseased worker or his widow, at the time they really need it. In the case I have sketched, while there is no clear scientific proof of the causal connection, there is certainly no scientific disproof either. Instead, what the Board does have is cogent circumstantial evidence which, given a plausible scientific base, should serve as the basis for a finding that it is more probable than not (rather than scientifically certain) that this Ontario plant is producing these cancers. Sometimes this initial judgment from the Board will turn out to have been mistaken in light of later and better scientific research. This will be a good reason for the Board to revoke or tighten up on its earlier compensation guidelines. But the fear that this might happen is no reason for the Board to refuse ever to commit itself until it has unimpeachable scientific evidence.

3. Evaluating Claims Which Do Not Meet a Guideline

The same more flexible set of mind is required of the Board for handling claims for diseases covered by a policy guideline but which fail to meet all of the criteria in the guideline. Recall that the intent of the guideline is to establish a presumptive connection between a disease and a workplace wherever there are general reasons to believe that the workplace probably caused the disease. The function of this legal presumption is to relieve the claimant and the Board of the burden of reploughing the same medical-scientific ground in every claim. But there will be many cases in which workplace exposure did contribute to the disease even though this took place in circumstances which could not fairly be written into a legal standard governing the general run of claims. Thus the fact that the Board has formulated a policy guideline must not stand as a legal obstacle to an individual worker's trying to show that his particular facts involve an occupational connection, even though they do not satisfy all of the criteria in the WCB's guideline.

On their face, all the Board guidelines promise workers that their cases will be treated on their individual merits, enjoying the benefit of the doubt. My review of the actual decision-making practice of the Board leaves me with the strong impression that this is not what happens in practice. The Board treats its guidelines as reflecting the best current scientific evidence and is prepared to ignore them only in the exceptional case. To be fair to the Board, it is quite prepared to change the content of the guidelines themselves to reflect new scientific research, and then to reconsider old claims in light of the new criteria.[25]

But the more illustrations there are of the latter scenario, the more powerful the guidelines appear to be as the exclusive route to establishing a disease claim. This attitude has to be changed. There must be no implication on the part of the Board that disease claims which do not satisfy their guidelines carry some type of presumption against their validity. Otherwise, I fear that pressures will build to sweep away all limiting criteria in the guidelines themselves. For the reasons I gave earlier, this would be a retrograde step in the attempt to design a rational and economic procedure for administering this part of compensation law.

How should the WCB view a claim from a steelworker, for example, who suffers from lung cancer but who has not satisfied the exposure time set out in the coke oven guidelines? The Board must recognize that it has to make a practical (not a scientific) judgment on the basis of limited evidence, about the most likely cause of the disease. It is not a matter of pure speculation and conjecture to look to the workplace, because coke oven emissions have been identified as carcinogenic in principle (in the Board's own guideline). On the other hand, a variety of other possible causes exists: work experience outside the province, non-occupational exposures, the worker's personal habits and encounters. The Board has to marshall and sift through the various clues which are available to decide which is the most probable. As to the workplace, it may find that while the duration of exposure was deficient by one year, emissions in this plant at the time may have been especially strong, and the worker's actual job function may have given him particularly intense exposure. It would seem reasonable to infer that a "higher" score by this latter dimension could make up for the shortfall in time. Even if the evidence in favour of the workplace is less than compelling scientifically, the real question is how this compares with the alternative hypotheses, all of which may have even weaker support on the facts. If the latter should be true, the Board must be prepared to grant the claim even though it does not satisfy the general guideline.

Another way to put this point is that the Board must avoid the trap of (figuratively) seeing the workplace as the criminal defendant in the dock, identifiable as the culprit only if there is strong proof to this effect. Rather, the WCB has to make up its mind about which is the more likely source, the workplace or some other factor. And in the final analysis, the fundamental principle of workers' compensation is that if the relative probabilities are reasonably in balance, the doubt about the cause–even the cause of a disease–must be resolved in favour of the claimant.

G — An Industrial Disease Standards Panel

In the previous Section, I set out my analysis of how a Workers' Compensation Board should approach the question of whether diseases are industrially caused and thus compensable. This is a problem which I have been discussing and grappling with for the past two years. Obviously, I have not come up with a legal formula which will solve the problem once and for all. I hope that I have demonstrated why there can never be such a magic legal wand to identify those diseases caused by the workplace and those which are not. At the same time, I believe that a subtle change in the set of mind at the WCB will be helpful in closing the sizable gap between the estimated number of industrial disease victims and the number of successful claimants. I hasten to add that the Ontario Board has been at the forefront in expanding the basis for compensating seriously disabling diseases, and that it also has the responsibility for formulating criteria which will exclude from compensation those diseases which are not occupationally caused. But responsible guidelines are not the same thing as scientifically demonstrable guidelines. In a world of inevitably limited knowledge, insisting on rigorous scientific backing for either general disease policies or adjudication of individual claims will inevitably tilt the balance against recognition of real occupational disease cases (as has been shown again and again by subsequent evolution of both scientific knowledge and the Board's guidelines themselves).

To help facilitiate the emergence of this rather different conception of compensable industrial diseases, there should be another actor in the field: an Industrial Disease Standards Panel. These are my reasons for this proposal.

In conducting my inquiry I was struck by the wide disparity between what the WCB actually does about industrial disease and what the parties in Ontario think it does When a new disease issue looms on its horizon, whether under the impetus of science or politics, the Board regularly consults with outside specialists who conduct elaborate reviews of the scientific literature and then propose what they believe are sound criteria for appraising specific disease claims. As new cases appear to probe the limits of these guidelines, the Board regularly reviews and revises them. With rare exceptions, outside parties are unaware of how painstaking an effort this often is, because the procedure is invisible and enclosed. The decision to initiate the review and perhaps to mount an epidemiological study, the selection of persons responsible, the time involved, the evaluation of results–all of these are within the purview of the WCB. More particularly, they are entirely the preserve of the senior medical staff of the Board, who engage in this dialogue with their outside consultants. At the end of the process, the Board simply issues an announcement of the new policy guideline. By and large, all that unions, employers, and others know about the process is how long it took.

Such a closed system has two evident deficiencies. First, it hides the fact that there is an inescapable policy dimension to compensation guidelines. Logically speaking these are not, they cannot be, a matter solely of science; even though this may be all that the Board doctors inside and the medical consultants outside tend to focus on. Second, this procedure deprives interested parties of any role in the standard-setting process. The people and groups who are vitally affected by the guidelines have no ability to influence their content in any systematic way. Neither union nor employer faces the discipline of having to subject its own position and criticisms to the scrutiny and observations of other people with real expertise in the field. Too often the result has been a debate with far more ideological heat than intellectual light.

Like many public problems, issues of science policy are far too important to be left solely to medical experts. The process must be much more open to participation by the consumers of the policy product. My proposal for an Industrial Disease Standards Panel reflects the same philosophy of compensation decision making which underlay my recommendation for a new WCB Corporate Board, an independent Workers' Compensation Appeal Tribunal, and outside Medical Review Panels.[26]

The Panel I envisage would have as members the kind of eminent medical specialists now regularly consulted by the Board. But it should not be limited to people of this discipline. The Panel should also have a clinician, an industrial engineer and hygienist, a lawyer or someone else with experience in compensation adjudication. The reason, I reiterate, is that while the scientific component is obviously vital in industrial disease guidelines, it should not be the exclusive element. Inevitably, the guidelines will be the primary route to compensating disease victims under the statute. In formulating the relevant criteria, then, after the scientific research has been explored, one needs the perspective of the clinician who must diagnose his patient's disease, the engineer familiar with industrial processes, the hygienist who must investigate the actual exposure at work, and the lawyer who has experience in decision making on the basis of practical probabilities rather than scientific certainty.

While this Panel would have a considerable work load, I envisage that membership would be part-time. This would more likely attract some of the best people from their respective fields who might be unwilling to interrupt their careers for a full-time position. Upon reflection, I believe that it would be preferable not to have representatives of management and workers' groups on the Panel. Needless to say, unions, employers, injured worker organizations, and others would have the right to participate fully in the proceedings of the Panel. But the ultimate judgments should not be the result of the tug of frankly partisan views.

This Panel should not be locked into a formal legal procedure, especially not trial-type hearings with testimony under oath and subject to cross-examination by lawyers. Issues of science policy require a more flexible, probing style of inquiry. Either on its own initiative, or at the request of the Board, the Ministry, or an interested party, the Panel would undertake the review of a disease to which there is, as of yet, no standard, or where the guidelines appear to be outmoded.* Probably the Panel would base its work primarily on a review of the world-wide research literature. However, it should have a budget (coming from WCB assessments) with which it could commission an Ontario study when it believed such was necessary. A document would be prepared and issued analyzing the current knowledge in the area and setting out the options with the arguments, pro and con. On this basis, the interested parties would be provided with a systematic canvass of the problem to which they could react with observations and criticism. On occasion, the Panel might schedule oral hearings at which opposing views could be exchanged and debated.

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*At the outset, the Panel would need to canvass a number of internationally recognized industrial diseases for which there is as yet no Ontario standard, although the toxic substance is to be found in Ontario industry; e.g., leukemia and benzene, angiosarcoma and vinyl chloride, lung cancer and chromium, bladder cancer and the aromatic amines in the petrochemical industry.

The ultimate product of this procedure would be a document which would identify a particular disease as characteristic of an industrial process in Ontario. If such a causal connection were found in principle, the document would spell out specific criteria which should produce a strong presumption in favor of compensation; e.g., 8 years' exposure and a 12-year latency period. It would be useful if the Panel also spelled out the situations in which current scientific knowledge indicated that the chances were strong that the disease was *not* occupationally caused: perhaps less than 1 year's exposure and 4 years latency. The presence of these two sets of criteria in the same document would bring home vividly to Board adjudicators that simply because a claim did not satisfy the first set would not warrant the tacit assumption that the disease should not be compensated (for all of the reasons stated in the previous Section).

The final question is, what should be the status of the Panel's document? Should it be merely advisory and subject to adoption by either the WCB Corporate Board or the Cabinet (on the advice of the Ministry)? Many people would naturally assume that a further opportunity for review and challenge in front of another body would be a good thing. My own inclination is to the contrary. It is possible that in cases of disagreement between the Panel and either the Board or the Ministry, the Panel was wrong. But if we put the right people on the Panel, these cases should be few and far between (and if the Board or Ministry has good reason to believe the standard should be changed, it can always communicate this to the Panel and ask it to reconsider). The standards finally issued by the Panel should be the governing ones. They should be attached to the Act (as are the current Regulations and Schedule) and thus enjoy this degree of formality and accessibility.

But while the judgment of the Panel on the general standards should be decisive, the standards themselves should be rebuttable in the adjudication of individual cases. As a practical matter, I assume that grant of a claim would be nearly automatic in cases where a disease claim actually satisfied the criteria. But it is best to preserve the potential leeway for the exceptional individual case where other evidence points strongly to a non-occupational cause; if only to give the Panel the confidence to draft somewhat more generous guidelines for the typical claim. I have already remarked on the need for a considerably more relaxed approach by the Board to disease claims which fall short of these criteria. These individual cases would be processed through the Board's own adjudicative structure; the claimant would have the right to outside review by the Workers' Compensation Appeal Tribunal and/or a Medical Review Panel. As new cases surface, as new scientific research appears, the Industrial Disease Standards Panel would be responsible for reviewing and refining the content of the standards which it has already issued.

H—Fatal Diseases

A system of workers' compensation confronts a further major difficulty with disease claims. What happens when the person suffering from the disease dies? The fact that the worker is dead does not necessarily end the responsibility of the program if there is a surviving spouse and dependent children who must have income support. The principle of workers' compensation remains the same. Such survivorship benefits are to be paid if and only if the death is attributable to the workplace. In the case of accidents this ordinarily is an easy judgment to make. If death is in fact due to the accident, it usually occurs immediately or soon thereafter (although we found a number of fatalities produced by the lingering effect of a serious accident, with intervening facts such as infection, complications, mishaps on the operating table, and so on). Diseases present inherently more troublesome causal issues. Even if the WCB has surmounted the first hurdle of the long latency of the disease and held it to be occupational in origin, the fact that many diseases are progressive in character will often leave great doubt about whether this work-related disease was actually the cause of the ultimate fatality.

We analyzed all fatality claims before the Board in 1980.[27] There were a total of 531 such cases that year. These fell into two distinct categories. First is the "new" case, the person who died without previously having received benefits of any kind. In 1980 there were 343 of these cases.* Second is the "old" case, the person who died while receiving workers' compensation benefits. There were 188 such claims in 1980. The latter category poses special difficulties. Not

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*These "new" fatal claims are a microcosm of the general problem we already have canvassed, of how we identify *occupational* diseases. Of new *accident* fatality claims, more than 80% were accepted by the Board, but only 15% of the new *disease* fatality claims passed this test.

only is there a distinct hiatus between the initial disability and the death, a period which is occasionally decades long, but the disabled worker will have been receiving a compensation pension, will have been relying on this to support his family, and the latter now faces the prospect of an abrupt cut-off in this source of income if the death is held to be from some external cause. This is the result logically implied in a limited program of *workers'* compensation. But from the perspective of a family which needs an income on which to live, it may seem inhumane to add this financial hardship to the distress of the death itself. Understandably, then, close cases of this kind often generate the greatest emotion and controversy encountered within workers' compensation.*

I do not mean to suggest that death by disease of a disabled worker always requires difficult causation judgments. If a worker is drawing a silicosis pension, for example, and is killed in an automobile accident on an afternoon drive, it is clear the workplace had nothing to do with this fatality. This type of situation rarely occurs. In 1980 not one of the "old" disease cases actually died of accidental causes (although clearly more victims of disabling accidents will eventually die of diseases, such as heart failure). In other situations a causal connection between disease and death will also be apparent. In an occupational cancer case, there will often be great difficulty in citing whether the cancer is occupational in origin. But if that hurdle has already been surmounted and benefits paid to the worker who is still alive, the ultimate fatality will almost always be attributed to the workplace (as in 31 of 32 in 1980, cases, the lone exception being someone who died of pneumonia after a stroke).

In practice, the tough cases involve victims of non-respiratory occupational disease. Of 58 such pensioners who died in 1980, only 19 were judged by the Board to have died of an occupational cause

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*One feature of the Board's process occasionally adds fuel to the flames. When a WCB pensioner dies, his disability pension automatically terminates. A new entitlement decision is needed to institute these separate and distinct survivorship benefits. When the Board learns of the death, its practice is to immediately investigate the nature and circumstances of the fatality to decide whether it was produced by the job. If the Board concludes that the death was work-related (as it usually does), survivorship benefits are instituted with no further ado, without the need for even a request by the survivors. In that situation, this quick and efficient Board procedure is an admirable one. On the other hand, if the Board concludes that survivorship benefits are not to be paid (as it did in 63 of the 188 "old" cases in 1980), it simply makes an internal decision to that effect and closes the file. In my view the Board should not make such an adverse decision without initially informing the survivor of the nature of the legal issue and of its doubts about the fact of the occupational connection, requesting any comments or information which the survivors may wish to add. However receptive the Board is in fact to such information on an appeal by the survivors, it is much to be preferred, in view of both the principles of natural justice and the human needs in a tragic situation, for the Board to stay its hand initially until any such views have been expressed.

(although in 11 other cases survivorship benefits were awarded under another statutory provision which I will mention shortly). Our review of all of these files indicates that invariably these are close cases. Neither the surviving spouse nor the family physician is immediately ready to agree with the Board decision. With cessation of all benefits from the WCB riding on the outcome, this relatively small population of claims generates a remarkably high proportion of the *causes célèbres* which have wracked the Board and system in the last decade.

Nor is there a body of scientific literature which will clearly settle these hard cases. One recurring problem is the person who suffers from a serious respiratory problem–e.g., silicosis or asbestosis–and then dies of a heart attack. To the layman, it seems intuitively plausible that a serious lung condition which has badly restricted a worker's breathing and his general ability to function *could* have had an impact on the heart and eventually caused its failure. The Board has consulted experts on this subject a number of times–in the early Sixties, the late Sixties, and again in the late Seventies–and has been told each time that there is no scientific evidence that respiratory disease increases the risk of heart disease. On the other hand, the literature suggests that a serious respiratory condition may increase the likelihood that a heart attack will be fatal; and of course the fatality is the crucial event as far as the compensation system is concerned.

There is one response to this general problem in the Act. Section 43(7) provides that if a worker was suffering from a 100% compensable disability, his death is deemed to be occupational in origin for purposes of survivorship benefits. This is a quantitatively significant provision. Of a total of 186 "old" fatal accident claims adjudicated in 1980, the Board concluded that 89 of the deaths were not work-related. But of these, 26 (or 30%) were granted full survivorship benefits by operation of S.43(7). The presence of this statutory provision puts even greater weight on the disability rating itself. If a spouse will automatically draw a full pension if the deceased worker was 100% disabled, why should he be put to a real risk of no benefits at all if the previous disability had been rated at 90%? In fact, there is a tendency in many of the difficult cases for the Board to retroactively review the earlier level of disability (from a respiratory disease, for example), to find that the worker had actually become 100% disabled sometime before his death, and then to use S.43(7) to fully compensate for the fatality (the immediate cause of which may have been heart failure); without having to venture onto this doubtful scientific terrain.

As and when the White Paper proposals become law, this is likely to prove an even greater problem. Because of the new bifurcated system for compensating permanent disabilities. Lump sum awards will be paid for the degree of physical impairment, and actual wage loss benefits will be paid for the economic disability which this impairment may cause a particular worker. Logically, the condition for S.43(7) will be found in the physical impairment rating, which is based on the worker's own physical condition, rather than the wage loss benefits, which vary considerably with the nature of the person's occupation and skills and his ability to find work notwithstanding his impairment. But it will become even more difficult for a surviving spouse to understand why she is to receive no benefits at all because the deceased had only a 50% lump sum award for physical impairment, although he was drawing 100% wage loss benefits at the time of his death.

No one suggests that the solution to this dilemma would simply be to repeal S.43(7) and to stop automatic payment of survivorship benefits in the 100% disability case. Some people suggest that the scope of S.43(7) might be broadened somewhat. After all, as I was told, if the 100% disability rating inevitably carries with it survivorship benefits, why not 90%; if 90%, why not 80%. The trouble is that once one starts down this path, there is no stopping point. If 50%, why not 40%, and so on. An alternative solution might be to prorate the deemed survivorship benefits. In other words, if the deceased had an 80% (or a 40%) disability rating, the survivors should get 80% (or 40%) of the appropriate survivorship benefits under S.43(7).*

There are two problems with this kind of solution when viewed from the larger perspective of the purposes of workers' compensation. On the one hand, it would tend to produce a level of income support for survivors which, while better than nothing, is quite inadequate for their needs. The vast majority of physical disability ratings are 30% or under. One would simply be replicating in the fatality setting all the evils of the "meat-chart" approach in permanent partial disability cases which the White Paper is trying to cure. On the other hand, substantially extending the reach of S.43(7) will eventually raise this insistent question. A person has suffered a workplace injury years ago, which produced a permanent impairment in his arm that is rated at 20%, for example, but one that did not affect his ability to work. Why should this long-ago event produce any survivorship benefits, even at the 20% level, if he is killed in an automobile accident or dies from a heart attack? The point of workers' compensation, after all, is to have *employers* pay the cost

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*This all assumes, of course, that the latter are *not* entitled to the full benefits on the basis of a Board judgment that this death was really caused by the workplace.

of injuries inflicted by *their* operations or business on their employees.

As long as we are to retain a program specifically designed to compensate only occupational injuries, we will have to confront the difficult challenge of how to identify these cases, whether disability or fatality. There simply is no statutory formula which provides an easy, across-the-board solution. One has to focus on the specific type-situations which present real difficulties, e.g., respiratory disabilities and heart fatalities. In my view, the forum for addressing these situations is the Industrial Disease Standards Panel. This is the body which should conduct the necessary scientific review, consult with affected groups, and eventually formulate a presumptive standard which establishes a sufficiently probable connection between a particular disease and certain kinds of fatalities. This would be part of the overall standard which connects up the disease with certain workplace exposures. To the extent that these general criteria are feasible, they should greatly facilitate handling individual cases with a minimum of emotional and financial cost to those involved. Unquestionably, this will not be a complete solution. A recurring problem is the absence of accurate diagnosis of many fatalities, especially as autopsies are becoming less and less common in Ontario. But this difficulty is simply part and parcel of the general problem of trying to fit industrial diseases into the legal framework of workers' compensation.

I—The Significance of the World Outside

So far my analysis has dealt with how the WCB itself might be made more receptive to the industrial disease claims which it receives. But if one looks again at Table 3, an objection might be raised to such a focus. Using an admittedly rough (but conservative) measure of the actual dimensions of occupational cancer in Ontario, I showed that the WCB is now compensating less than 1 of every 15 cancer fatalities which one might expect to be job-related. But Table 3 showed that less than 1 in 7 such cancers was the subject of a claim to the Board. Thus, even if there were to be such radical changes in the law or procedure that essentially all such claims were accepted, still only a tiny fraction of potentially-compensable cancer would receive redress.* The suggestion might then be made, that the major source of the problem of undercompensation is outside, not inside the Board.[28]

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*And, of course, there is no reason to suppose that the Board should be compensating all or nearly all of *these* claims.

There is something of a fallacy in this reasoning. After all, there is an important connection between what the Board does to the claims it receives and how many and what kinds of claims will be made to it. To the extent that its guidelines are too limited in scope and restrictive in their criteria, but Board adjudication of individual cases religiously insists on satisfaction of these guidelines, the high rate of rejection of the claims which are made will discourage a good many others from coming forward (especially since many of the latter will look even more debatable in the light of the current guidelines). By the same token, as the new Industrial Disease Standards Panel moves to develop standards for newly-recognized diseases and to relax the criteria for older diseases, and as Board adjudication becomes more receptive to claims which do not satisfy the general criteria to the letter, the message will get out in the community. Gradually the flow of claims to the Board will increase so that it approaches what we believe to be the true scope of industrial disease.

This is one of the latent virtues in the procedural changes I contemplate with the new Panel. The point of an open participatory process is not simply to elicit commentary from the interested parties in order to make the decision-makers more informed. It is also to educate the community about current scientific learning regarding the scope (and the limits) of the industrial disease problem in Ontario. A by-product will be a considerably greater degree of awareness of whether a particular disease may have been job-related, thus meriting a compensation claim.

Perhaps the key constituency to educate for this purpose is the family doctor. True, local union officials do have a significant role to play as well, especially in situations in which there is fairly well documented hazard in their own industry and plant. By and large, though, the worker has to rely on the doctor who sees him and treats his illness for advice about whether there is a possible occupational connection. In turn, the physician has to be sensitive to this issue, he has to be familiar with developments in the scientific literature, and he has to be aware of the relevance of taking an occupational history (not merely inquiring about his patient's smoking or drinking).

It is generally conceded that the medical profession in North America has not placed sufficient emphasis on the occupational sources of disease, either in medical education or practice. To some extent this is understandable. The family doctor is naturally oriented towards treatment of the immediate effects of the disease on his patient, rather than trying to discover and deal with the larger social/environmental causes. But as long as this is the near-exclusive focus of the worker's doctor, we will always face the prospect of a large shortfall in disease claims reaching the Board, no matter how open and receptive the latter's standards and procedures might be.

Clearly there are inherent limits to what can be done about the medical profession from the limited purchase of workers' compensation. The Ontario Board is quite conscious of this problem. Its staff doctors write regular columns in Ontario medical journals and occasionally publish research about industrial disease developments in Ontario. One lever the Board should consider using is its fee-setting process. After all, Ontario doctors are, literally, the eyes and ears of the Board (and also the Ministry of Labour) on the current scope and distribution of industrial disease in the province. There is a felt need for greater emphasis on the occupational factor in medical education, professional development, and specialization. The WCB is a source of a significant share of the incomes of doctors who regularly treat workplace injuries. After discussions with affected parties, the Board might find it a worthwhile investment to pay a specialty premium to those doctors who have and maintain accreditation in this field. In tandem with OHIP, consideration should also be given to better recognition of and payment for occupational histories. In the longer run, these relatively modest investments might generate a major return by reducing the occupational contribution to disease, health care costs, and income losses in the province.

This same line of reasoning would justify greater WCB support of basic epidemiological research (an area in which the Ontario Board is already a North American pioneer among compensation tribunals). In studying this subject and reviewing the literature, I was struck by the large gaps in basic information about industrial disease in Canada. Research done for the U.S. Department of Labor in the Seventies has worked out the methodology for studies which can throw great light on the subject [29] (especially since the raw data are often more accessible and manageable in Ontario). It is only when we know the true extent and distribution of the problem in the province that we can set rational priorities in the pursuit of the solutions. The Board now invests a good deal of money–nearly $30 million annually–in funding the educational activities of safety associations whose near-exclusive focus is on industrial accidents. A reasonable sum should also be invested, either by the Council of Safety Associations or by the Board itself, in sustained empirical study of the scope and location of industrial disease in Ontario.*

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*As good a place as any to begin would be a systematic case-control study of the relative contributions of the workplace and smoking to lung cancer, one of the most hotly-contested issues in this field. The major spokesmen on both sides of the debate about the Estimates Paper have joined in calling for such a study and have sketched how it should be done.[30] Ontario could make a real contribution to the international struggle against cancer by having such a study done here.

3

Towards a Comprehensive Disability Plan

A — Introduction

If adopted, the measures which I proposed in the previous Chapter would considerably improve the way that workers' compensation treats the victims of industrial disease. As long as we have a distinct program for compensating just *workplace* disabilities, we have an obligation to make the system more open and more equitable in its appraisal of this category of claimant. I do not pretend that implementation of these changes, however defensible they are in their own right, would radically enhance the ability of the Workers' Compensation Board to discern those diseases which are truly occupational in origin from those which are not. This would require a great leap forward in our scientific understanding of the origin and development of these diseases, which we cannot force merely by changing the law or its institutions.

For a number of reasons, workers' compensation law will always fall short in the identification of industrial disease. First and most important, the system is inherently prone to undercompensation. Again, we can take occupational cancer as the chief illustration. No matter how receptive or sophisticated the program may become in staying abreast of scientific knowledge about cancer, science itself is always running well behind reality. Every year hundreds of new chemical compounds are introduced into Canadian workplaces. Many of these will eventually prove to be carcinogenic. But because of the long latency period of cancer, the excess risk from exposure to any one substance will not manifest itself for decades. In the meantime, thousands of victims will die of occupational cancer with no reason to suspect the workplace as the culprit, and thus without having even applied for workers' compensation benefits. In a compensation system such as Ontario's which has no statute of limitation on claims, when the scientific facts emerge the Board can seek out the earlier victims and pay the compensation owing to their heirs. But however praiseworthy this effort may be, no one would suggest that it is an adequate substitute for paying the benefits to the diseased worker and his dependents when they really need them.

What about those industrial sites which we do have reason to suspect are carcinogenic? Even in these cases, a compensation program which must decide individual cases on the basis of statistical evidence will inevitably maldistribute the money it actually pays out. Some industrial processes will have definite but only marginal excess risks, sufficient to justify preventive standards for the future, but not great enough to warrant an inference that any one cancer was more probably than not produced by occupational exposure (even though we may know that, statistically, one cancer out of four, for example, was so caused). At work sites where there is firm evidence of a strong excess risk, each claim as it comes up will look like a probable occupational case (granted a meaningful latency period) and will warrant compensation; even though we know, statistically, that perhaps one out of four of these workers would have developed cancer even without the workplace exposure. The manifest objective of a workers' compensation system is not just to award a global amount of benefits which is roughly comparable to the industrial disease toll, but to confer the benefits on those, and only those, industrial victims whose disease actually stemmed from their work. The disjunction between the law and the science of industrial cancer and other industrial diseases inevitably leaves this objective beyond the program's reach.

Finally, a compensation program which is founded simply on occupational causation is inherently incapable of accommodating the fact that seriously disabling diseases are usually multi-causal in character. In the initiation and promotion of cancer, for example, we know that personal life style–smoking or diet–and the general environment–air and water pollution–often figure along with a toxic industrial substance. Without the conjunction of these external factors, the workplace exposure might not have generated any malignancy at all, or at least the cancer might not have manifested itself as early as it did (the latter fact being crucial for a program designed primarily to compensate income lost from the disability). Ontario workers' compensation largely follows the principle that the employer takes the victim as it finds him. If the workplace was one significant factor causing the disability which occurred, full compensation is paid even if other causes were operative as well. This attitude is sensible to the extent that our focus is on the situation and needs of the victim. If cancer takes the one and only life of a worker, his widow and children need full income support irrespective of the fact that one-third of the causal responsibility may be imputable to smoking, another third to air pollution from motor vehicles. But to the extent that the rationale of a no-fault system of workers' compensation is to make industry and its products bear the risks which it inflicts on its workers, a legal doctrine which imposes all the costs of these diseases on the employer and none on cigarette or automobile manufacturers, for instance, inevitably misses this mark.

There is a common denominator to each of these shortcomings. Workers' compensation might more aptly be named *workplace* compensation. The program entitles employees to benefits and subjects employers to liability if and only if the injury was caused by the workplace–i.e., "if the injury arose out of and in the course of employment." In the case of the major and seriously disabling diseases–cardiovascular, cancer, and the like–the causal connection is inherently incapable of being drawn with any reasonable degree of assurance. We can tinker with the system to improve its performance somewhat, but we should be under no illusion that we can solve this dilemma in the absence of major scientific breakthroughs in our understanding of the etiology of these diseases.

There is a far-reaching *legal* solution which would guarantee that all actual victims of occupational disease collect the benefits which the law has promised them, irrespective of the gaps in the evidence regarding the toxicity of their workplaces. This would be to establish a comprehensive disability plan which would insure workers against income losses from all diseases irrespective of whether the workplace was a cause.

In some respects the case for such a comprehensive plan tracks the same historical logic which led to the creation of workers' compensation itself. At the turn of the century, victims of industrial accidents could obtain legal redress only by showing that their employer's fault was the sole cause of the incident. For a variety of reasons–doctrinal and procedural–this tort law regime left uncompensated the great majority of industrial accident victims. Governments around the world responded in essentially the same way to the dilemma posed by this fault barrier: they simply eliminated it. Compensation was provided to all employees injured because of their job, irrespective of whether the employer was at fault.

In the last decade it has become apparent that the vast majority of industrial disease victims fail to obtain recovery under the now venerable regime of workers' compensation. The statutory hurdle of establishing that the workplace was the cause of a disease is equally as onerous as was the common law requirement of proof that the employer's fault produced an accident. Thence the appeal of the same kind of solution to insure that the victims of crippling long-latency diseases secure some redress. Instead of pursuing the will-o'-the-wisp of determining how the disease came about, we should focus instead on the kinds of disability it has produced and the financial needs felt by its victims. Meeting their needs is, after all, what a *compensation* program is about.

B — The Sources of Disabling and Fatal Injuries

Of course, by itself this would be a rather cavalier argument for the adoption of comprehensive disability compensation. One cannot justify the elimination of the occupational condition for entitlement to workers' compensation benefits simply on the grounds that doing so would ensure that no actual victims of industrial disease go uncompensated. The price of achieving that goal would be that the victims of all diseases (and presumably all accidents) would be compensated as well. As far-reaching a step as this requires a sustained positive justification.

That need becomes even more compelling when one appreciates the relative contribution of the workplace to the overall disability and fatality toll. Surprisingly, the workplace is one of the less dangerous places to be in this modern, mechanized world. Outside of the exceptionally hazardous occupations–e.g., mining or logging–in general, a person driving to and from work, or even staying at home, faces considerably greater risks than when working at his job. We do not have particularly good data on the distribution of causes of death and disability in Canada. But what we do have, and what we can extrapolate from data of other countries such as the United States, make this point abundantly clear.

The best evidence exists for fatalities whose immediate causes are systematically recorded. Approximately 60,000 Ontarians die every year.[1] Of these about 5000 (or 8%) die of accidental causes. Of the fatal diseases, the most prominent are cardiovascular ailments, responsible for about 22,000 deaths annually (or 36%) and cancer, about 14,000 (or 23%). But the Ontario Board compensates only about 300 fatalities a year, or 0.05% of the total. As I have already explained in detail, the nature of a workers' compensation system inevitably leads to an underestimation of the scope of industrial disease (and resulting fatalities), so not much weight should be placed on this proportion. The same objection cannot be raised about accidental deaths, whose nature is such that the Board must be compensating almost every case actually generated at work. These amount to about 200 a year, still only one out of 25 of the total. Motor vehicle accident deaths–at 1500 a year,[2] or nearly 1 out of 3 accidental deaths–and fatal accidents in the home[3]–at 1,000 a year, or 1 out of 5–exact a far higher accidental death toll than does the workplace.

Essentially the same judgment holds if one focuses on fatalities among the working-age population, perhaps the more significant group for programs in disability compensation. The annual death toll among the 20-64 age group is about 18,000. Only 3,000 (or 17%) are due to accidents; by contrast, cancer and cardiovascular disease each contribute 5300 fatalities or about 30% of the total in this age group. If the 200 compensated accidental fatalities are weighed in terms of this group, the workplace still accounts for only 1 in 15 accidental deaths occurring in the province. We have no reliable measure of the contribution of the workplace to industrial disease (workers' compensation statistics being inherently unsuited for this role). On the basis of current knowledge, at least, one would be hard pressed to conclude that any more than 10-15% of these stem from work and this is still vastly more than the number now being compensated by the WCB.

Much the same position emerges from the scattered evidence we have about the disabled. A 1979 Survey of recipients of Canada Pension Plan disability benefits–people who are both permanently and totally disabled–disclosed that only 10% of them were in receipt of workers' compensation pensions.[4] A 1982 analysis of the Annual Labour Force Survey finds that of Canadian workers absent from work for at least two weeks due to illness or accident, about 20% are in receipt of workers' compensation benefits (closer to 30% of males alone).[5] Again, a problem with these figures is that they incorporate the systematic under-compensation of industrial disease victims. But we do have some estimates of the sources of disabling accidents. Several years ago, a Manitoba Inquiry estimated that 27% of disabling accidents in that province occurred in the workplace.[6] This is roughly in accord with the figure for the United States, where the causes of accidental injuries are systematically recorded. In the United States, about 20% of temporary and 20% of permanent disabilities due to accidents come from the workplace, versus about 15% and 40% respectively from motor vehicle accidents, and about 40% and 25% from the home.[7]

All in all, then, the workplace is a subordinate source of accidental injuries, producing a progressively smaller share as the disabilities get more serious or fatal. The picture is obscure as far as disease is concerned, but the available evidence does not suggest that the workplace has a predominant role here, either. I do not mean to minimize the significance of the job site as a source of far too many injuries and fatalities which should be compensated or, better yet, prevented. My point is simply to underline that going beyond workers' compensation to a comprehensive scheme of disability insurance would be a major step in social policy. It cannot be justified simply on the grounds that it will provide workers' compensation with a solution to its intractable problem of how to do justice to the victims of industrial disease.

C — The Current Array of Compensation Programs

Before addressing the issues of principle raised by the notion of a comprehensive disability plan, I must first sketch the array of programs now available for compensating the injured. Indeed, when one recalls that there are three basic types of harm associated with a disabling injury-a need for often expensive medical treatment, the interruption of income, and pain and suffering or loss of enjoyment of life-it is apparent that Canada already has one crucial component of such a general plan. Medicare provides insurance against all hospital and doctors' bills generated by an injury. The current issue, then, is whether to add systematic protection against the loss of income due to a disability. To confront this issue intelligently we need to know what are the current sources of income replacement for different categories of injury victims, how these compare with each other, and what are the gaps and inadequacies in the pattern of coverage.

Table 1, at page 59, gives us a snapshot of the present situation.[8] It is apparent that there is a multiplicity of programs in Canada - public and private, statutory and judicial, social insurance and social assistance. The thread which runs through them is that as the basis for eligibility broadens, the level of compensation narrows correspondingly.

1. Tort Liability: Especially for Auto Accidents

The luxury compensation model is tort law. Full redress is provided for all lost income, with no ceilings and no time limits.[9] Implicit account is taken of future income inflation.* The measure of the award is lost gross earnings before tax, but the award itself is non-taxable. Disability income received from other "collateral" sources, public or private, is not deducted from the tort award. And there will also be damages for non-economic harms - pain and suffering or loss of enjoyment of life - ranging up to about $150,000.

From the injured victim's side there are no eligibility requirements for pursuing a tort action; no conditions of age, work, prior contributions, or the like. The real issue is whether there is another party who is legally liable to pay the disabled person these damages. A tort plaintiff must establish that someone else caused his injuries, that this defendant was at fault in the incident, and that the latter is financially capable of paying the judgment (which, as a practical

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* The tort award, which is based on projected loss at current income levels, is reduced to a capital sum through a real interest rate of $2^{1}/_{2}$%. If one assumes that the investment of the award at market interest rates will earn the inflation premium over and above the real interest rate, the victim is provided with protection against future inflation.

Table 1.
Sources of Compensation for the Disabled in Ontario: 1981

PROGRAM	ELIGIBILITY	DISABILITY BENEFITS	SURVIVORSHIP BENEFITS	FINANCING	FEATURES	CLAIMANTS EXPENDITURES
Tort liability Insurance	Injury due to another's fault. In practice - largely automobile accidents	Full compensation. Present value of future lost earnings. Pain & suffering up to $150,000	Full compensation for loss of economic support	In theory, culpable defendant. Practice liability insurer	Not taxable No collateral deductions Implicitly indexed	Motor vehicle 115,000 $280 million
No-fault auto insurance benefits	Injury in automobile accident - 2 yr. disability, own employment; then any employment	80% of gross income. Maximum $607 month Lifetime	$10,000 - deceased head of household or spouse, plus $1000 surviving child	Compulsory motor vehicle insurance premium	Not taxable or indexed Deducted from tort award	45,000 $67 million
Workers' Compensation	Occupational Injury	75% of gross earnings Max. $1387 mo. Lifetime pension. Implicit physical impairment	$492 mo. for spouse $136 for each child	Payroll assessment of employers by industry group	Not taxable No collateral deductions. Adjusted to inflation	165,000 lost time $620 million
Veteran's Disability Pension	Injured while in Armed Services	$910 mo. single $1138 mo. married Lifetime	$569 mo. spouse $137 mo. child	General federal revenue	Not taxable No collateral deductions. Indexed	35,000 $61 million
Criminal Injuries Compensation	Injured by criminal action	Wage loss pain & suffering Max. $15,000 lump sum Max $500 mo.	Same	General provincial revenue	Not taxable *Coll. are deducted Not indexed	918 $2.5 million
UIC Sickness Benefits	Contribution from work Absence from work Illness or accident	60% of insurable earnings Max. $819 mo. After 2 wks for 15 wks.		Employer and Employee Contributions	Taxable Coll. are deducted Ceiling indexed	60,000 $60 million
CPP Disability Benefits	Contribution from work "severe & prolonged" 3 mos. waiting period	Max. $268 mo. till death or 65	$165 spouse $63 child	Employer and Employee Contributions	Taxable Coll. not deducted Indexed	87,000 $117 million
Private Insurance-Disability	Typical-long term Own job - 2 yrs. Any job - after 2 yrs.	Typical 1/2 to 2/3 income till death or retirement age		Mostly group-employer pays all or part of premiums	Taxable Coll. are deductible Not indexed	Long term $400 million Short term $450 million
Private Insurance-Death	Death by accident or disease		Typical-twice annual earnings of deceased	Mostly individual. Some group	Not taxable Coll. not deductible Not indexed	Group-$430 million
Social Assistance Family Benefits Act inc GAINS-D	Perm. Disabled. Incapable of working. Means test-Assets & Income	$364 mo. single $579 mo. couple $46 mo. child		Gneral Provincial Revenue Funds	Taxable Colls. are deductible Periodic adjustment	60,000 $240 million

matter, means that the defendant is either a large organization or has liability insurance). These "eligibility" conditions are stringent. Disabling diseases are excluded *de facto* from the tort litigation process in Canada. Although the vast majority of tort claims arise out of motor vehicle accidents where the conditions for recovery are most propitious, only 45% of those seriously injured on Ontario highways recover anything through the tort system.[11] It is generally conceded that people who are injured as a result of product use, medical mishaps or home accidents collect tort awards far less often than that. While we have no firm figures for the amount of personal injury compensation under tort law, a very rough estimate would put it at no more than $350 million dollars a year.[12]

Notwithstanding their better prospects in tort litigation, automobile accident victims have been provided with an additional source of no-fault insurance protection. Anyone injured in a motor vehicle accident in Ontario, irrespective of fault, is entitled to income replacement of up to $600 per month, non-taxable, payable for two years if he is unable to perform the essential duties of his occupation and indefinitely thereafter if he is prevented from working in any occupation for which he is reasonably suited by education, training, or experience. These benefits are deducted from any tort damages which are awarded, but they do not detract from the right to sue a negligent driver for the full damage which he has inflicted. In 1981, about $67 million in "add-on" benefits were paid to 45,000 motor vehicle accident victims, averaging $15,000 each. This combination of a guaranteed no-fault income base and the prospect of full recovery of generously calculated damages from a negligent and insured defendant gives victims of automobile accidents – the largest source of serious accidental injuries – what is probably the best protection now available to a disabled Ontarian.

2. Injured Employees Covered By Workers' Compensation

Under the current statute, an injured worker can recover 75% of his lost gross income up to a ceiling (in 1981) of $23,000 (or about 130% of the average industrial wage in the province). The maximum benefit of nearly $1400 a month is potentially payable for life: it is non-taxable, and no deduction is made for disability income received from other sources. In practice, permanent disability pensions are adjusted periodically for inflation. While there is no explicit provision for compensating purely non-economic harm, the method of calculating partial disability benefits on the basis of physical impairment does that implicitly, albeit erratically. On the average, 160,000 injured workers collect these income replacement benefits at a cost of $620 million annually. We have already seen how this population of workers' compensation beneficiaries is heavily skewed towards industrial accidents rather than diseases.

As and when they are enacted, the Government's White Paper proposals will rationalize and improve the level of disability protection within workers' compensation (though with little or no increase in its total cost). Benefits will be calculated at 90% of *net* lost income up to a ceiling of 250% of the average industrial wage (now about $46,000). For a married worker with two dependent children, maximum benefits will be $3300 a month. Allowance is made for the tax factor by calculating the income lost from net take-home pay, and deductions will be made for collateral disability income from public sources (particularly the Canada Pension Plan). As well, for permanent physical impairments, an explicit lump sum payment will be paid, which can range as high as $70,000 for a young worker who has been totally and permanently disabled.

With respect to income replacement, the proposed workers' compensation benefit package is essentially as good as that available in tort law, at least for the 99% of Ontario workers who will earn less than the proposed ceiling. Workers' compensation will pay only one-half the level of non-economic damages, which can run as high as $150,000 in tort actions in the province. But the major advantage of workers' compensation over tort law is that it is a form of guaranteed loss insurance for injured workers, one which is not subject to the vagaries of proving fault and collecting from a private liability insurer. A worker and his family will continue to draw the bulk of their income during his occupational disability even if no one else is involved in or at fault in his accident, and indeed even if it was due entirely to his own carelessness.

3. Disabled Veterans and Victims of Crime

I should mention two other specialized programs for disability compensation. One is a federal scheme for disabled veterans, which pays up to $910 a month for a totally disabled single veteran and $1138 for someone who is married. Partial disability awards and survivorship benefits are also available. Again these benefits are nontaxable and without deduction for other sources of disability income. Roughly $61 million is spent annually on disabled veterans living in Ontario.

Like other provinces, Ontario operates a modest program for compensating victims of certain serious crimes. Benefits up to a maximum of $15,000 in a lump sum or $500 a month in periodic payments are awarded for special medical expenses, net income lost because of inability to work, and non-pecuniary harms flowing from a crime. Slightly over 900 awards are made annually at a total cost of 2.5 million dollars; but since 70% of these are for purely non-pecuniary damages, probably less than $1 million a year is paid for lost earnings.

4. Unemployment Insurance Sickness Benefits

While the foregoing programs vary considerably in design and benefit levels, they are all *categorical* in character. This means that the benefits are payable if and only if the injury came about in a certain prescribed way: be it due to another person's fault, or to the commission of a crime; or because the victim was hurt at work, in an automobile accident, or injured in wartime. There are two more or less comprehensive schemes which provide income maintenance to Ontario wage earners irrespective of the source of their disability. But as the program coverage gets broader, the level of income replacement gets correspondingly flatter.

The first of these is the sickness benefit payable under the Unemployment Insurance Act. The condition for eligibility is working and contributing to the UIC for 20 weeks in the previous year. If an employee becomes sick or otherwise disabled from working at his "regular" job or other "suitable" employment, he can collect 60% of his previous earnings up to a ceiling of $315 per week, i.e., a maximum monthly benefit of about $820. This benefit is payable after two weeks off work, for a maximum period of 15 weeks. It is taxable and subject to deduction of any other sickness benefits from employment. Essentially the UIC provides a short-term sickness plan which serves as a substitute for one made available by the employer itself (the latter often going considerably farther in its protection). About 60 thousand claims are made by Ontarians each year for total benefits of $60 million annually.

5. Canada Pension Plan Disability Benefits

The other side of federal disability protection is the Canada Pension Plan. While the major thrust of this program is retirement income, it also pays disability and survivorship benefits to those whose working life is prematurely halted by a permanent, total ("severe and prolonged") disability. These benefits are payable to workers eligible through contribution to the CPP in five of the previous ten years. The benefits begin after 4 months of the disability–in effect replacing the UIC sickness benefit–and last until age 65, when a retirement pension will become payable. The fundamental problem is that the level of benefits is so low, now a maximum of about $300 per month plus $70 per dependent child (which is 55% of the poverty line for a single person and 40% for a couple). In fact, the average pension among the 80,000 or so current recipients is only about $200 a month. A 1979 Survey of CPP disability benefit recipients showed that when all income sources were counted, 42% were below the poverty line for a single person, and 30% had a total income of less than $3000 a year. Total payments of CPP disability benefits to Ontarians now run at about $117 million annually. We saw in the previous Chapter that the bulk of these benefits are paid to the victims of disease.

6. Private Insurance

The CPP disability benefit, meagre as it is, is not available to all disabled workers: e.g., those who have not satisfied the contribution requirement or those who, while not totally disabled, are effectively unable to continue at their old job and can find nothing else. For these, and for others who cannot get enough to live on from the CPP, workers' compensation, *et al*, there are two other important sources of income: private insurance and social assistance.

Private disability insurance has grown considerably in the last decade and is now a significant feature in the larger picture. Short-term sick leave plans are, of course, commonplace in contemporary employment. For my purposes, more important is the availability of long-term disability protection. Private insurance contracts can vary widely in their terms, depending on what is wanted and what is offered. The pattern they tend to follow is the replacement of 1/2 to 2/3 of pre-injury income in cases of disabilities which prevent the person from working at his own job for up to two years and in any job thereafter. The benefits are taxable if the employer has contributed anything to the premiums, and are net of any other source of disability income.

While these benefit packages are not up to the standard of workers' compensation, for example, they do provide a decent level of income maintenance for those who are covered by them. The problem is that coverage is highly dependent on where one works. Only 125,000 Ontarians were covered by individual policies (at a total cost of $34 million), and this coverage is concentrated among executives and professionals. By contrast, 1.5 million Ontarians had group coverage at work, especially those in unionized employment. Nearly 2/3 of workers covered by collective agreements enjoyed this fringe benefit. Group disability policies contribute about $400 million annually in voluntary disability benefits in the province. Life insurance, of course, is an analogous form of protection, payable if the accident or disease produces a fatality rather than a disability. Focusing on *term* insurance, which is primarily designed to provide income replacement for surviving dependents rather than savings for the insured himself, one finds that such group contracts in Ontario provide coverage of $430 million annually.

7. Social Assistance

Suppose someone falls between the cracks of this entire array of programs, or that his entitlement is too low to live on. Neither he nor his family will go destitute in Ontario. Social assistance programs run by the province provide the final safety net for the disabled as well as for other disadvantaged people. The GAINS-D program under the Family Benefits Act is the major resource for the most seriously disabled persons, paying benefits of $364 a month for a single disabled person and $579 if he is married (as compared with the 1981 poverty line of $482 and $696 respectively). Not only is this limited benefit reduced by any other income of whatever type, and then taxable, but it is subject to an exacting means test which requires that the bulk of the disabled person's assets be depleted before assistance is provided. Perhaps the best test of adequacy of the disability income protection otherwise available in Ontario is that in 1981 some 33,000 disabled persons had to draw $140 million from GAINS, and another 27,000 who did not satisfy the specific criteria of GAINS received $100 million in general assistance under the Family Benefits Act.

8. Summary

This complex and detailed description can be distilled into several propositions:

(i) Sizable sums of money are now being spent in Ontario in compensating the victims of disabling or fatal injuries. In 1981, I estimate that roughly $2.5 billion were expended in group programs of one kind or another–2%, of the gross provincial product.

(ii) This money is being funneled through a multiplicity of programs–public and private, federal and provincial–each with its own principles, categories, and administration.

(iii) The question of which category a disability fits into is crucial in determining the level and adequacy of the income replacement which an injured victim will receive. As an example, suppose that a single person earning $30,000 a year is permanently disabled in an automobile accident on his way to work. If he can establish that someone else is entirely at fault, he will collect tort damages calculated at $2500 a month, non-taxable. If the accident occurred while he was at work, perhaps driving a truck, he will collect about $1400 a month in compensation, again non-taxable. If he was not at work and cannot establish that the other driver was at fault, he will collect $600 a month in "no fault" auto benefits. If he was injured at home as a result of a crime, e.g., a burglary, he will collect $500 a month. But if he was injured at home due to nobody's fault, and must rely solely on the CPP or GAINS programs, he will get only $300 a month, a sum which is taxable (at least in principle).

(iv) The more generous public programs are directed at the victims of accidental injuries, especially those hurt at work or on the road. Victims of serious and disabling diseases, a far more numerous category of the disabled, must rely largely on the CPP and/or GAINS. What gives emotional edge to the technical issues of how to identify industrial diseases is that riding on this verdict is a relatively generous workers' compensation pension of up to $1400 monthly as compared with the subsistence level of the CPP at less than $300.

D — Towards Comprehensive Disability Protection: The Case of Accidents

The previous section gives us a systematic account of how Ontarians are compensated when they suffer disabling injuries of various kinds. How we should evaluate the current state of affairs, what we should do with one or more of these programs, is quite a different matter. This depends on what we believe to be the important objectives to be achieved through our disability programs: compensating the victims of injuries, reducing the number and severity of these injuries, allocating the burden of these injuries in a fair and equitable manner, limiting the cost of administering such programs, or some combination of all of these. In disentangling these complex issues,[11] it is important to distinguish between accident and disease cases, since there are profound differences in the nature of the problem posed by each.

Up to now almost all efforts to broaden the scope of compensation for injury victims have been focused on accidents, especially motor vehicle accidents. It is illuminating to reflect on the decades-old controversy over tort litigation for automobile accidents from the perspective of workers' compensation. Tort liability for automobile injuries and workers' compensation for occupational injuries are the two most generous and elaborate disability programs we have. Yet each embodies a fundamentally different conception of how its respective claimant population should be handled.

The tort law model rests on the principle that a person who has been injured in an accident should obtain compensation if, and only if, he can show that someone else was at fault in causing the accident. When this is proved, the victim then is entitled to recover damages for all the harm which he has suffered, both financial and personal (i.e., pain and suffering). Because these damages must be awarded once and for all in a lump sum, considerable time must pass before the injuries have stabilized enough so that a prediction can be made about their future magnitude. Any dispute between plaintiff and defendant about issues of either fault or damages, must be settled in a judicial proceeding on the basis of evidence and argument presented by both sides.

The workers' compensation model rests on the premise that an employee who has been injured at work should be guaranteed compensation out of a collective fund contributed to by all Ontario employers. These benefits are payable irrespective of the lack of fault on the employer's part; indeed, even in the presence of substantial fault on the part of the employee himself. But these benefits do not purport to provide redress for all the injuries which have been suffered. There is some limitation on the degree of income replacement, and theoretically no compensation for purely non-economic losses. The benefits are paid periodically to the injured worker for as long as the disability lasts, with payments beginning as soon as the injury is reported to the Board. Disputes about entitlement and amount of compensation benefits, are settled in an administrative proceeding, largely on the basis of independent investigation by the WCB.

These are starkly different legal instruments for handling disabling injuries. A community might believe that one or the other is the best way to proceed. Perhaps it might conclude that neither is to be preferred. It is hard to see, though, how it can hold that each is the proper instrument within its own domain.

Suppose our standard of appraisal is how well a system performs the task of compensating the victims of accidents. From this perspective, a well-designed program would be *comprehensive:* it would provide redress for any accident victim who had suffered real injuries requiring medical treatment, lost time from work, and so on. In addition, it would be *prompt:* it would offer this redress as and when the needs are actually felt, when expenditure of the money would assuage the distress of the injury itself and head off additional dislocations and obstacles to rehabilitation. To the extent that resources are scarce, as they always are, the system would have a rational ordering of *priorities.* It would provide more adequate redress to the victims of serious injuries than to those with minor injuries, on the assumption that the latter are better able to look after themselves. And it would insure that all medical treatment and rehabilitation needs were being looked after, and that the flow of income was being maintained for the victim and/or his family to live on, before trying to provide monetary consolation for loss of enjoyment of life.

There can be no doubt that the tort model fares poorly when measured against this standard. This is true even in the case of motor vehicle accidents, the kind of mishap where tort law is by far the most important.*

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* Workplace injuries, of course, were long ago removed from the tort system. But about 40% of disabling and fatal accidents occur outside the workplace and off the road. A recent and exhaustive study in the United Kingdom found that only

In the last two decades, in-depth investigation of how the tort process handles automobile accidents in Ontario, British Columbia, Quebec, the United States, the United Kingdom, and Australia has produced a remarkable concurrence about these central policy facts;

(i) Only about 45% of the people injured in motor vehicle accidents collect any money at all through a tort claim (not only in court but also through settlement with a liability insurer). As the injuries get more serious, the proportion of successful claims drops even further. Those who do not satisfy the basic eligibility rule of tort law–that another person was at fault in causing an accident–are left to draw on one or more of the other programs described in the previous Section.

(ii) On average it takes about a year to settle a tort claim involving serious personal injuries. Many of these cases take two years or more. In the meantime the victim must subsist as well as he can, often nervous and insecure about whether there will be any eventual recovery.

(iii) When one compares the amount of money recovered in tort law to the actual economic losses suffered by the victim, one finds that those with minor injuries tend to collect more in tort damages than their out-of-pocket expenses and lost wages; the seriously injured tend to collect far less. This does not necessarily imply that the minor accident victim is collecting a windfall. He may have suffered a certain degree of pain and suffering for which the insurer is willing to pay rather than expend its resources in fighting a plausible legal claim. But the badly injured victim (who suffers proportionately even greater non-economic loss) usually does not even come close to recouping his tangible financial losses. The reason is that he has neither the time nor the money to fight a claim for the two or three years it would take to get a court verdict. He needs money now to live on. This pressing circumstance often compels him to accept a settlement which is far less than the actual harms which were inflicted. This latent bias in the distribution of tort law dollars as between the seriously and the modestly injured is, perhaps, the most stinging indictment of tort law as an instrument for compensating motor vehicle victims.

2.5% of the victims of this latter category collected any tort damages at all, a figure which accords with earlier estimates from Australia and New Zealand.[15] It is highly unlikely that Canada, with much the same law and procedure, would be far off this figure.

To the defenders of tort law, this criticism misses the mark because it holds up the wrong standard.[16] The objective of tort law, they contend, is *not* injury compensation, pure and simple. All that the law can do is decide which of the people involved in the law suit must bear the cost of an injury once it has occurred. Take the case of an accident in which a pedestrian was injured when struck by a driver's vehicle. If one looks simply at the situation of the plaintiff pedestrian, certainly he seems to need compensation for what may be serious injuries. But if this is the reason why the defendant is made to pay tort damages, such a verdict simply shifts the burden to the driver and makes him a victim looking for compensation himself. Fault has always seemed an attractive candidate for resolving this dilemma. Suppose that the accident was caused because the driver was going too fast through an intersection, thus failing to adopt the kind of precaution which the community expects in order to protect pedestrians from such an accident. It seems only fair that a culpable driver should bear the burden rather than the innocent pedestrian. And he should pay for *all* of the injuries: not just for medical costs or loss of earnings, but also for the real impact which the loss of a limb or the disfigurement of a face can have on the personal life of the victim. On the other hand, if the pedestrian was also at fault in the incident–e.g., jaywalking on a busy street–the damages suffered should be shared in proportion to the responsibility of both parties. To the extent that the law systematically implements this fault principle, it will also generate the incentives needed to make people more careful in their behaviour, thus reducing the overall accident toll. In this respect, as well, tort law reinforces our sense of individual responsibility for accidents and their consequences.

From this alternative angle of vision it is neither surprising nor arbitrary that many accident victims do not win compensation in the tort action; because the real issue posed in the tort model is not whether a particular plaintiff should have some money, but rather whether the money should be paid by a particular defendant. To the charge that the exigencies of real life distort the actual operation of the tort system, its supporters respond that the empirical findings I reported earlier are no longer true of the current process in Ontario.[17] We now have comprehensive Medicare, which insures that the hospital and doctor bills will be paid regardless of whether there is a valid tort claim. We have Legal Aid which will see that there is a lawyer to prosecute the claim. And we have no-fault automobile benefits which guarantee immediate payment of up to $600 a month in lost earnings. This income floor permits a tort claimant to resist inadequate offers for settlement and to pursue the full redress to which he is entitled under the fault doctrine. Viewing the current system as a whole, with the variety of no-fault benefits living in peaceful co-existence with the individualized system of fault liability,* the Ontario Advocates' Society asserted to me in no uncertain terms, that the victims of automobile accidents in this province are much better off than victims of workplace accidents. The latter are denied any right to sue in court and must rely exclusively on a statutory/administrative remedy with a good many flaws of its own (e.g., income ceilings, flat-rate survivorship benefits, the "meat chart" for permanent/partial disabilities, no recovery for pain and suffering, and so on).**

Those who would further pursue the critique of tort litigation in motor vehicle accidents must tackle its basic premise: that the law can allocate the costs of an accident only between the individuals involved in it, and fault is therefore the fairest criterion for such a choice. Even within this frame of reference there is something troubling[18] about a system which would make the driver of a car who may be guilty of no more than momentary or inadvertent carelessness, bear the full cost of crippling injuries inflicted on a pedestrian. After all, we are all guilty of this venial fault in our driving at some time or other. Is there really good and sufficient reason for shouldering a particular driver with tens of thousands of dollars of tort damage merely because he was unlucky enough that his carelessness caused a serious accident? Actually we do not have to face up to this moral uneasiness in administering the tort system. The simple truth of the matter is that this driver will not actually pay the damages (and few would have the financial resources to do so irrespective of what the law said). In the real world of automobile accident litigation it is the liability insurer for the vehicle who pays if the plaintiff-pedestrian is successful in his law suit.

The development of the modern institution of liability insurance has put an entirely different complexion on the traditional tort law regime. What happens if we consider tort law/liability insurance as a single integrated system for dealing with automobile accidents? Each year the owners of motor vehicles in the province contribute premiums to a vast pool of funds administered by a number of insurance companies; money which is then available to satisfy tort awards.* In this setting, the real issue in the tort action is not whether it is fair to shift the losses incurred in an accident from say, a pedestrian to the driver. Whether the latter is the owner of the vehicle or the employee of the enterprise, in neither case will he personally pay for the damages. What actually rides on the outcome of the lawsuit is whether the individual victim will gain access to these collective funds. Does it not seem strange that a person who has suffered real injuries and is in grave need of compensation should be denied any redress from these socially-generated resources (to which he and his family almost certainly have contributed regular premiums or other payments), simply because he is unable to show that the nominal defendant (the driver and/or employee) was at fault in the accident? This result will appear even more arbitrary and unjust to an innocent victim who recovers nothing at all by way of tort liability, when another person who has been contributorily negligent collects damages for a substantial share of his injuries (including pain and suffering) from an insurance company merely by pinning some fault on another individual involved in the accident.

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* I should note that if the case for the adequacy of the tort system rests in significant part on its being supplemented by the basic no-fault benefits, this case applies at best only in the automobile setting. I noted earlier that fewer than 5% of the victims of accidents off the highway (and outside the workplace) recover anything from tort law. But these special no-fault benefits are confined to victims of motor vehicle accidents, although nearly 50% of the latter have viable tort actions.

**I might add that these remnants of the "rough justice" of the original workers' compensation model in Canada are precisely those features which the White Paper proposals are designed to correct in Ontario, by providing more finely-tuned redress for the actual income lost by the injured worker or his surviving dependents.

The emergence of large insurance companies or other enterprises as the near-exclusive source of funds for paying tort compensation has almost entirely undermined the principle of individual fault and responsibility as a plausible criterion for determining whether someone should collect such compensation. It is also clear that administering this criterion is highly wasteful of the available resources of both the parties and the public. Assessing which parties are to blame in the accident requires meticulous investigation and analysis by both sides, often forcing each to hire and pay for a lawyer. If the two cannot agree, they will have to go to court for a full-scale reconstruction of the original events before a judge and jury. Though only a tiny proportion of automobile accident cases end up in court, they impose a large drain on the judicial resources of the community, consuming about 40% of the civil time of Superior and County Court judges in Ontario. Again we have a variety of empirical studies of the cost of administering this tort liability/insurance system in motor vehicle accidents. The estimate in Ontario is that it costs the private parties and the public purse a total of about $1.00 to deliver another $1.00 in compensation to an injured victim.[19]*

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* Alternatively, if the potential defendant is a government or large corporation whose employees were involved in the accident, the enterprise may find it more economical to insure itself against this liability. Even in this case the revenues used will be contributed by all the consumers of its goods or services.

This is in stark contrast to the variety of no-fault social insurance schemes where the comparable costs of administration are about ten cents for every dollar in benefits in workers' compensation (plus another five cents for an extensive medical, rehabilitation, and safety program), and about five cents for UIC sickness benefits and for CPP disability benefits.

Suppose we were to dismantle the tort liability/insurance regime with its painstaking judgments about who is at fault in the accident, and its laborious attempt to calculate a lump sum award which would precisely measure the past and future losses suffered by the victim. In its stead we might expand the workers' compensation law to cover all accidents, work-related or not. The victims of accidents would receive periodic payments to replace a substantial proportion of their lost earnings, irrespective of the presence or absence of fault in the incident. Presumably modest additional awards would be made for permanent physical impairments or disfigurements.** This single comprehensive scheme would not cost Ontarians appreciably more than the current array of programs (tort and non-tort) reviewed in the previous Section, with their haphazard incidence of recovery and their inequitable disparity in benefit levels. This remarkable result would be achieved by eliminating most of the administrative cost of the current system and then focusing the available money on the replacement of earnings lost by everyone who has been hurt, rather than spending much of it on damage awards for pain and suffering for those few people able to establish that someone else was at fault.[20]

The accumulation of empirical studies and scholarly analyses has generated widespread advocacy of such fundamental reform of the traditional tort approach to compensating accident victims. In 1978, Quebec took the first step down this path, though just for motor vehicle accidents. Tort liability was abolished and replaced with a program of fully indexed income replacement benefits (90% of net lost earnings up to a ceiling which is now $26,000), with comparable survivorship benefits, and lump sum awards ranging up to $30,000 for permanent physical impairments. This entire package of benefits, guaranteed to all Quebeckers involved in auto accidents, costs the average Quebec car owner only $95.00 in annual insurance premiums (plus $21 per year from the gasoline tax). Governments in Saskatchewan and Manitoba have proposed the next step: coverage for accidents off the highway and outside the workplace. Such an accident compensation plan has actually been in effect in New Zealand for the last decade. The New Zealand plan pays benefits of 80% of earnings lost, up to a ceiling which covers all but the top income bracket together with generous survivorship benefits and modest lump sum awards. In 1979, the total cost of the program in a country of 3 million people was $114 million, requiring an average payroll assessment of slightly over 1% for employers, automobile insurance premiums of $15 per pleasure vehicle, and another $13 million in general government revenues to pay for accidents for non-wage earners off the road.[21]

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* The cost is slightly less in Britain - $0.85 according to the Pearson Report - and slightly more in the United States - $1.10 according to the Department of Transportation Study. Indeed in the United States it now actually takes more than $2.00 in social resources to get another $1.00 into the hands of those injured by medical malpractice or defective products.

** I realize of course, that expanding the scope of the workers' compensation model beyond occupational injuries would require considerable change in its source of financing, now entirely through assessments on employers. I shall take up this issue later on in this chapter.

E — Towards a Comprehensive Plan: The Case of Disease

The previous Section set out the highlights of the current debate about how best to compensate the victims of accidents. The defenders of the tort regime still fight a vigorous rearguard action against any encroachment on their domain. They argue that it is unfair to deprive the injured victim of the right to full redress (including damages for pain and suffering) from a blameworthy defendant; and also that compensating all accident victims from a general social fund would erode the sense of individual care and responsibility which is needed to prevent the accidents in the first place. The experience under workers' compensation provides a useful perspective on these arguments. However critical they may be about specific features of the Ontario program, the consumers of workers' compensation in the province–both employer and worker groups–are dead set against any return to the tort model of *full* compensation *only* where fault is established. As for the impact of the compensation system on incentives to prevent accidents, I shall tackle this issue in depth in the next Chapter.

Whatever one's ultimate judgment about the desirability of applying the workers' compensation model to accidents occurring outside the workplace, such a step is neutral as far as accidents inside the plant are concerned. By this I mean that even if occupational and non-occupational accidents continue to have markedly different compensation schemes, it is comparatively easy to keep the two separate. This is in sharp contrast to the case of disease. Almost all forms of serious industrial disease are also produced by conditions and exposures outside the plant; it is exceedingly difficult to tell what was the actual cause in any individual case. This is what led me to suggest at the start of this Chapter that the only way to guarantee that nearly all cases of industrial disease will get compensation, is by compensating *all* diseases. But the dimensions of a comprehensive plan for disease are very different than they are for an accident plan. One cannot rely on the easy, pragmatic justification with which I ended the last Section: that we need spend no additional money in compensating more accident victims, but simply spend what we do now more sensibly and more equitably.

In the first place, the incidence of disabling disease is far greater than that of accidents, and this is even more so for serious and/or fatal conditions. I should add that there is not as great a disparity in income losses due to these two sources of disability. The reason is that accidental injuries and fatalities tend to be concentrated among the young, requiring a much larger amount of income replacement, whereas the serious diseases–cardiovascular, cancer, and respiratory – are more likely to occur as one gets older, perhaps even after one has retired.* Still and all, the financial cost of disease is much greater than that of accidents. In the one systematic analysis of this point of which I am aware, the Australian Royal Commission estimated in the early Seventies that the cost of compensating accidents in that country ($325 million net of tax) would be one-quarter the cost of a program for both congenital incapacity and disease ($1330 million net). The distribution of disabilities in Ontario should be roughly the same.

Not only are the financial needs generated by illness several times those produced by accident, but the shortfall in public programs is even starker. I noted earlier that the more generous schemes of disability compensation were all oriented towards traumatic injuries: whether caused by motor vehicles, the workplace, during wartime, or by crime. The victims of disease must rely on the subsistence level programs: the CPP and GAINS. And there are no spare dollars left in either the administration or the benefit structure of these programs which might be used to make the income maintenance levels more generous.

Yet from the point of view of compensation policy for the disabled, there is no principled case which can be made for such disparate treatment. As I argued in the previous Section, if a man forty years old is injured in a serious accident, is totally disabled for a lengthy period of time, and then dies leaving a wife and several young children, the need for a flow of income to continue to support himself and his family is precisely the same whether the accident occurred on the road to work, at work, or after he had come home from work. An accident compensation policy which delivers radically different levels of income replacement in these three cases no longer seems sensible or fair. But if the individual suffers a heart attack or a malignant cancer, his need for financial support is precisely the same as if he had been an accident victim. And since disease is the kind of misfortune which is currently treated much less generously than accidents, it would seem to deserve even greater public concern and reform.

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* This is not to suggest that such diseases of old age are less important to prevent, but only that if the point of a compensation program is to provide redress for economic losses, age distribution is going to affect the amount of money required.

At the same time, to do the job adequately would require a major investment in social resources. The question, then, is why and how we are to do this. One can take one or two basic approaches in designing a general plan for the protection of the disabled against loss of job and income. One is the model of *social assistance;* the other, the model of *social insurance*. Each of these has its own distinct philosophy, with clear implications for the scope of the program, benefits, method of financing, and so on.

1. The Social Assistance Model

Under the social assistance model, the problem of disabling injuries is basically, considered to be one of poverty. A person has suffered a severe injury which prevents him working and thus cuts off his primary source of earnings. A compassionate society will respond to such misfortune by providing alternative income so that he and his family can buy food and clothes, pay for shelter, live and function at least at a minimally acceptable level in our modern, urbanized society. This response will take the form of general scheme of income replacement for the disabled, whatever be the source of the injury.

But this rationale has further implications for the design of any such scheme. There is nothing special about a disabling injury as contrasted with other misfortunes which may deny a person income from work. Many people have a background and personal problems which leave them unable to find or retain a job for which they might be qualified. They also require the same degree of social compassion to provide for the essential needs of themselves and their families.

However, the level of income maintenance in such a broad-scale program would be quite low. There is a felt need to maintain a considerable margin between income paid to those who do not work and income paid to those who do work, especially at comparatively unpleasant and low-paying jobs. Under a social assistance model, little special recognition can be given to those who do not work because they are physically incapable of doing so, by contrast with those who do not work because of personal or social misfortune.* In either case, before an individual is entitled to such assistance, he will have to use up his own personal savings, liquidate certain capital assets (even the equity in his home), and pass a stringent needs test. Equally as important, the benefit structure will respond uniformly to the person's current situation, based largely on family size and makeup, although with special allowance for certain individual needs. It will not reflect the difference in income previously earned and now lost as a result of either a disabling injury or other causes. By the same token, the funds for social assistance would come out of the community's general revenues and tax system, and there would be no connection at all between the prior contributions of the individual before his misfortune and what he is now entitled to draw from the program.

A person who starts from this perspective might possibly argue that the present treatment of the disabled in Ontario is not a major policy problem. After all we do have the Family Benefits Act, which is now drawn on by about 35,000 disabled Ontarians and which provides a social safety net against destitution. Concern may exist about whether the actual level of benefits is generous enough to avoid real poverty, about whether more can be afforded by those who are working without creating an undesirable effect on the incentives felt by those who are not. But this is the age-old debate about welfare policy, and one in which the distinctive situation of the physically injured and disabled does not play a major role.

2. The Social Insurance Model

Our conception of the disability problem changes sharply when seen through the lens of the social insurance model. A hypothetical case illustrates the difference. A person is forty years old and has been working for 15 years for a firm, at a job now paying $25,000 a year. He supports a wife and three young children. The family lives in a house with a mortgage, and enjoys a lifestyle which reflects his current income level. He has seniority and job security with this firm and expects to work there until he retires at 65 with a pension that will support him and his wife at a comfortable level. On the way to work one morning his car runs off the road; he is permanently crippled and unable to work any longer. He has neither a tort action nor entitlement to workers' compensation benefits. Like most people he has a modest savings account, but nothing capable of warding off this devastating blow. If and when he is in a position to satisfy the means tests, social assistance will give him and his family a bare level of income. But while that kind of program will avoid the devastation of having no income at all, it does not address the fact that this person has been singled out by fate for a steep, sudden drop from a comfortable to a subsistence level of income, with the tremendous dislocation that this implies for the expectations, relationships, and patterns of life of this family. This latter type of misfortune, separate and distinct from poverty as such, is what a social insurance program for disabling injuries would be aimed at.

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*Though under the Family Benefits Act, claimants who satisfy the disability criteria for GAINS do receive an extra $85 per month over and above the general level of welfare benefit.

The desirability of *insurance* is clear enough in a case like this.[23] Insurance prevents the concentration of such a devastating income loss on a single family at a single time. Instead, the loss is distributed among a large group of people over a long period of time; people sacrifice a small amount of their current income and consumption to pay a regular premium into a fund which is available to provide for the few who are unlucky enough to suffer a major loss of all their income. Surely few candidates for insurance are as compelling as a serious, long-term disabling injury. After all, almost all of us purchase collision insurance for our car, theft insurance for our personal property, and fire insurance for our house. But the most valuable asset we "own" is our earning capacity.* If we are to have any insurance at all, it should be against loss of or damage to this asset.

Undoubtedly many people who will agree with my judgment on this point – the importance of protection against crippling injuries – will not be persuaded that the government need establish a program of social insurance against such disability. They will ask why we should not leave this to private, voluntary choice rather than making it a matter of public compulsion.[24] Each individual should be allowed to decide for himself how much of his current consumption he is willing to sacrifice by paying a premium to insure against this future risk. Given this freedom, some people may think they take better care of themselves than the average, or they may simply be willing to take more of a chance with their lives. Why should they be held to the uniformly higher level of risk aversion which the majority happens to feel?

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* A moment's reflection on my hypothetical example should make this clear. What would be the capitalized value of an asset capable of generating an annual return for the next 25 years of $25,000; actually more if one counts fringe benefits such as employer contributions to retirement pensions? And this is just the return in current dollars, whereas someone with a secure job can expect regular adjustments upwards in tandem with inflation and real economic growth.

This is the perennial challenge to those who propose any government program. It cannot be quickly and casually dismissed, especially in economic times such as these. A sophisticated response to that challenge will consist of several strands of argument.

First, we must be realistic about the individual's decision about whether to purchase disability insurance. Again and again, one sees, a strange bias in our behaviour. We tend to insure against the larger risks of smaller harms, rather than the smaller risks of larger harms; irrespective of whether the discounted impact of the latter is much greater than the former. This is borne out by the examples I mentioned earlier. We almost all buy collision insurance against the damage to our car in an automobile accident, but (absent government direction) rarely if ever do we buy insurance against the serious injury to our body in the same accident. That pattern is also to be found in public programs. Ontarians have first-dollar insurance to pay for simple visits to the doctor (under OHIP), or to protect against the first 15 weeks of illness and absence from work (under UIC), but they have grossly inadequate protection (under the CPP) against the devastating financial impact of total and permanent disability.

I suggest two reasons for this pattern. First, we have all been sick and missed work for some time, or had at least minor collision damage to our car, and we have seen that these mishaps happen and have to be paid for. but we are largely unaware of the true risk of serious injuries which occur infrequently and randomly (I, too, was quite unaware of this risk before I looked at the statistics in the course of this Inquiry). Psychologists[illegible] have found that when the probability of a risk drops below a certain level, we are prone to block it out of our mind, to treat it as a zero possibility, to neglect to do anything about it until it happens – when it is too late. The consequences of this all-too-human failure to provide against this future contingency are felt not only by the individual, but also by his family and by society generally, which feels obliged to maintain him at least at the minimum level prescribed by GAINS, *et al.*

Government has no such excuse. It is fully capable of a realistic look at the dimensions of the disability problem. It is aware of the thousands of seriously disabling injuries in the province every year, even though the risk faced by any one individual is small. It appreciates that the people who are singled out for injury have to be provided for in some way or another. In sum, the government is in the best position to make a rational collective judgment about the nature and level of insurance against the risk of serious disability, rather than leave this to the haphazard pattern of individual decision.

Nor need the government feel embarrassed by the charge that it is forcing something on people which they do not want. As we saw earlier, there is very little individual purchase of disability insurance - only about 125,000 policies in Ontario - by contrast with life insurance - for which there are now well over a million policies in effect. It has been pointed out, though, that this is largely due to a sharp difference in the nature of the two forms of insurance.[36] Life insurance protects against death, a single, non-recurring, event which, we can safely assume, everyone wants very much to avoid. Some kinds of disabling events are much the same - e.g., a car accident, or a stroke - which suddenly leave their victims entirely crippled. But much of the disability problem consists of conditions which are progressive, alterable, and whose impact, economic or otherwise, may differ widely from person to person and from time to time. These cases have proven to be difficult and highly contentious for WCBs - public tribunals with a great deal of resources and experience in handling them. It is unlikely that private insurance companies would be able to provide to the ordinary Ontario worker a decent level of *individual* disability protection on a voluntary basis and at affordable premium levels.[37]

In the last two decades, however, *group* disability insurance, especially in the employment context, has grown to the point where it now covers about one-third of Ontario workers. Implementation problems in disability insurance become more manageable when the plan covers a group large enough to permit risks and moral hazards to be pooled, and to involve the employer in the administration of the plan (with the firm's knowledge of the capabilities of its employees and the suitability of its work for them). Perhaps the best index of the attractiveness of such insurance to Ontarians whose job makes it realistically available to them is the fact that the bulk of group disability coverage involves unionized workers. When employees have a trade union representative whose business it is to learn about and explain the need for long-term disability protection, and when they have this voice in determining the makeup of their compensation package, they opt more and more for this benefit. It is now contained in 60% of the collective agreements in the province. This evidence makes it clear that there is a strong appetite for such insurance if it is made accessible to the ordinary Ontario worker.

At the moment, though, such disability coverage is available primarily to employees who work for large firms where there is union representation, or in closely analogous employment situations.

Intriguingly, this coverage exists not because the individual employee has opted for it as a matter of private choice, but rather because a social decision has been made – whether in collective bargaining or in the organization's personnel policy – that this is an appealing fringe benefit for the bulk of the workers. But a great many employees work in firms where disability coverage is not so feasible, or where it simply has not been adopted. When serious disability strikes and the unfortunate victim is consigned to the subsistence levels of the CPP and/or GAINS, the absence of private coverage seems particularly arbitrary and unfair. Just as was true of health care insurance, and is true still of retirement pensions, the case for government intervention to guarantee a decent level of disability insurance is compelling.

F—The Problem of Affordability

My reasoning so far has led me to these two conclusions of principle. First, all Ontario workers should have a reasonable level of insurance against loss of income due to serious disability. Second, there should be no distinction in the degree of protection afforded to those who happen to be injured by an accident on the highway or at home, or a cancer produced by exposure to a toxic substance at work or in the general environment.

Any number of issues will arise in the course of designing such a comprehensive plan. Addressing them in detail would take me far afield from what began as a review of workers' compensation and its treatment of industrial disease. In fact, since I began this Inquiry a Federal-Provincial Task Force has been established to take an in-depth look at the subject of disability protection in Canada. This group is now grappling with these ticklish problems. Still, it is incumbent on me at least to sketch something of the scheme which I have in mind, and to address some of the immediate questions such a proposal evokes.

I must first underline this implication of the fact that I am speaking of a social insurance rather than a social assistance program. The amounts paid to persons with the same physical impairment and functional disability will vary in accordance with their pre-injury income. The point of the program is not simply to provide a uniform floor of income to meet minimum needs. It is to insure people against a sharp drop in the previous earnings upon which they and their families had come to rely. No doubt it would be possible to incorporate a ceiling on the level of income which is so insured; leaving it up to higher-income earners whether they wish to purchase private insurance against this unusual financial risk. Executives, professionals, *et al.* can and do buy this type of individual disability insurance in the private market. But whether and wherever we might fix an upper ceiling, such a social insurance plan would replace income at or near the current levels of workers' compensation for occupational injury, and thus far above the stark poverty levels in the CPP and/or GAINS-type programs.

The same logic implies that financing of the program should be through contributions by or on behalf of those who are protected, calculated as a percentage of earnings up to the ceiling. In effect, the premiums paid would reflect the coverage and protection which had been obtained. The point of this policy change is to move from a haphazard potpourri of categorical disability programs to a systematic and comprehensive scheme. There is no particular reason why that step should be the occasion and vehicle for some covert income redistribution. If people believe that the dispersion of incomes in Ontario is currently too wide and unfair, and that the government should do something about it, that claim should be justified on its own footing and applied to everyone, not just to those who are disabled.

When I discussed a scheme such as this with representatives of the business community during the course of my Inquiry, with rare exceptions they did not object to the idea of comprehensive disability insurance on the merits. Instead, the universal reaction was that any such social program was simply unaffordable, especially in the present perilous economic climate.

There is something of a fallacy in this objection, at least from a global point of view. Society as a whole can afford the cost of disabilities, because it has no choice in the matter. If a person is hit by an automobile or is struck down by a cancer tumour, his removal from the productive labour force does occur, and so does the interruption in his earnings. These costs cannot be wished away. The issue of compensation policy is thus *who* is to be made to bear these costs, and in what proportion. Is it to be left entirely on the victim and his family, or to be spread among the able-bodied work force? Indeed, the theory of insurance, public and private, is that if we distribute the risk through a small, regular premium paid by everyone rather than concentrate the entire financial burden on a family which also has to bear the tragedy of a crippling or even a fatal injury, we can actually reduce the total human cost of accidents or diseases which do occur.

From another perspective it is equally true that a general disability plan is affordable. One can tailor the structure and level of benefits to the amount of money we are willing to direct to the disabled through a compensation fund. Even now Ontarians are spending about $2.5 billion a year in this area. The problem is the haphazard and ramshackle structure of programs through which we currently distribute this money. While there may well be a case for some increase in the overall resources which we should expend on the disabled, I do not assume that our target should be to raise everyone to the supposedly full level of compensation now paid in tort law, nor even to match every feature of the benefit structure in workers' compensation. What we need is a systematic reorganization of our programs so that the available dollars are spent sensibly and fairly, giving first priority to the cases of greatest need.

It seems clear to me that the most important need is the long-term disability case: the person who is seriously injured and is off work for many months or years, or even a lifetime. This situation is not just quantitatively but even qualitatively different from that of the person who is sick or hurt, and missing work for days or even weeks. In the latter case, while it is unfortunate if his earnings are interrupted, the worker will normally have some savings which he can use; he can put off paying certain bills until he is back at work, and he can cut back for the moment on the less essential expenditures out of his regular income and budget. But in serious long-term disabilities (as well as fatality cases where there are surviving dependents), none of these contingencies is available. Savings are soon exhausted. There is no immediate prospect of future income against which one can, in effect, borrow. In the absence of some alternative to earnings from a job, there simply will be no money to pay the current rent or mortgage, to buy the food one is used to eating, to replace one's clothes when they wear out, to pay for a car or other forms of transportation, and so on. If the object of disability insurance is to cushion people against the drastic financial effects of a serious injury on their normal life, the available dollars should be concentrated on long-term rather than short-term disabilities.

The unhappy fact, though, is that our current arrangements have quite a different orientation. The more generous programs, tort liability and workers' compensation, each provide protection against the first day's loss of income and provide the same level of benefits then as they do for the last day. Where we do make a choice between the two – short-term and the long-term disabilities – we tend to undercompensate the latter. For example, of the two comprehensive public programs, UIC now pays short-term sickness or injury benefits for 15 weeks up to a maximum of about $900 a month. But long-term disability benefits under the CPP, which begin after 4 months and continue indefinitely, go only as high as $300 a month. Essentially the same is true of private sick leave plans, which often maintain total earnings during short absences from work, but usually cover only a portion of long-term lost income. Even worse, such long-term disability protection is simply not available to two-thirds of the working population.

It is easy to understand why these programs, public and private, have evolved this way. Far more people are sick or hurt for short periods of time.[28] Assuming a scarce amount of dollars to spend on the disabled worker, it often seems politically more attractive to spread the money around among the many who have small injuries than to concentrate it on the few who have large injuries. But if we want to design a rational comprehensive program to spend the available insurance dollars in a way which is sensible and equitable, surely we should focus primarily on the people who suffer catastrophic losses which can ruin a family's life, rather than on those with trivial losses which inflict only temporary belt-tightening.

Let me put more precisely the response to the argument that comprehensive disability insurance is unaffordable. We could dismantle the array of current social programs for compensating disabled Ontarians: public (under the UIC and the CPP) and private (sick pay or disability insurance at work); judicial (personal injury tort law) and legislative (workers' compensation). This would free up something in the order of $2.5 billion which would be available to be spent on a single general plan. Such a plan would insure loss of income up to a generous ceiling - perhaps $30 to $40 thousand - after which it would be reasonable to expect that people could and would buy private supplementary coverage. But payment of these income replacement benefits would not start for a fixed period of time - in the order of 1 to 3 months. In effect, rather than paying an insurance company to hold and administer the modest amount of savings needed to tide one over a short period off work, the individual would be left to do this himself. But when benefits are payable, they should replace a substantial share of the income lost - somewhere in the range of 75-85% - in order to protect the individual and his family from a steep fall in their previous standard of living. Depending on the scarcity of funds for such a disability program, it might not be unreasonable to gradually phase in the level of income replaced - perhaps to pay nothing for the first two months, 30% of lost income for the next two months, and 60% for the fifth or sixth months - before the final level would be reached for the truly long-term case. This feature of the program would respond to the fact that one can adjust to a short-run loss of income by making a number of temporary changes in one's life style, but that this option becomes progressively untenable in the absence of another source of income.

All in all, with a carefully designed program such as this one, together with complementary survivorship benefits, I believe that we could get a surprisingly generous and far more equitable system of disability compensation for little or nothing more than we currently spend on our current hodge-podge of programs: and there is no reason to assume that we are spending as much as we should even now in financial support of those who must bear the personal and human consequences of a tragic injury.*

G—Who Should Pay: From the Compensation Point of View

Admittedly there is an air of abstraction to this kind of argument about the "global" affordability of disability insurance. What I have done is total up the sums now being spent on the variety of categoric programs and assume that this money can and should be spent instead on a single comprehensive program with a roughly comparable price tag. On this assumption, I am satisfied that the Ontario economy could readily bear the cost of such a social initiative. Of course, one cannot blithely assume that the existing programs would be easily dismantled, nor that the money thus freed would be rolled over into the new scheme. Some of these plans are federal rather than provincial. Some are private rather than public. Each has its respective constituencies of those who receive the benefits and those who provide the funds. Unquestionably, the path to a general plan leads through a political minefield.**

It would not be consistent with my role in writing a Report such as this to feel unduly constrained about the immediate political palatability of my conclusions. Especially in this second phase of my Inquiry, my job is to grapple with the fundamental issues of compensation policy and to map out the ideal direction in which the government should be moving in the longer run. At the same time, a proposal such as this, raises serious issues of principle, particularly in the redistribution of benefits and burdens which comes with the submersion of existing categorial programs in a new, comprehensive scheme. The arguments typically made and the answers which are appropriate are nicely illustrated by the case of workers' compensation.

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* I should note, as well, that any such disability benefits would be taxable income in the hands of the recipient. Thus, in order to calculate the *net* cost to the Ontario Treasury of the kind of plan I have sketched here, one has to set off against the total benefits payable, the taxes which are then paid on this disability income.

** Vivid testimony to this effect can be found in the controversy evoked by my recommendation in the first report to the effect that workers' compensation should be integrated with the CPP Disability and Survivorship Benefits in order to avoid double payments for the same injury.

During the course of my Inquiry, the reaction of many worker representatives to this notion was reminiscent of the Advocates' Society's response to proposals for motor vehicle compensation reform: they were all in favour of the idea of general disability protection as long as it did not touch their pet program. Trade unionists and injured worker groups tend to view workers' compensation not as a limited form of disability insurance whose funds come from the larger community, but as the vehicle through which business discharges its responsibility to those who are injured in the service of its profit-seeking ventures. In return for giving up the right to sue in court for full tort damages, those injured at work have been guaranteed a high degree of replacement for lost income, starting from the first day off the job. And the funding of such a program is entirely through assessments of employers, not from general government revenues or premiums paid by individuals. Each of these features would be changed considerably under the comprehensive plan. While full redress for essentially all the economic costs of disability might be feasible for a single type of injury, it is unlikely that the community would be able to extend the same level of benefits to all disabilities, wherever and however inflicted; at least not unless it is prepared to sharply expand the share of domestic income going to the disabled.* Choices have to be made in the allocation of the limited resources available. I strongly believe that the first priority must be the long-term disability case. If we decide to guarantee a decent level of protection for this category, the flip side will be a considerable reduction in the benefits available in less serious cases, including injuries at work or on the road. Would such a policy change be unfair?

In my view, clearly not. Consider the matter first from the point of view of those who are actually injured. The simple argument for a general plan is that in the case of motor vehicle accidents, for example, there is no justification for giving one pedestrian run down by a negligent driver full compensation (out of liability insurance), while an equally innocent pedestrian who happened to be struck by a carefully driven vehicle is restricted to no-fault benefits. (Again from automobile insurance). If each suffers the same serious injury, each should be paid the same benefits. By the same token, there is no reason why a person injured at work should be guaranteed the current high level of income replacement under workers' compensation, while a fellow worker who suffers the same serious injuries at home gets only the subsistence benefits of the CPP or GAINS. The reason for moving to a general plan is to eliminate this unfair lottery in the distribution of disability funds under which entitlement to a particular level of benefits turns on the fortuity of how the injury happened to be caused. Once the critical judgment has been made to institute the general scheme, there is no justification for retaining especially generous benefits for just those workers who happen to be hurt on the job.

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* Quebec was able to establish such a generous level of benefits when it moved from a fault to a no-fault scheme for motor vehicle injuries alone. This was feasible even with a considerable reduction in personal injury premiums because of the fact that so much money was already being spent in motor vehicle cases, including the costs of administration and litigation. A province would not have the same luxury if it were to include all disabilities, especially those due to disease.

The point is even clearer from the perspective of those who have not yet been injured and are insured against the risk of disability. After all, it is the same worker who is dependent on earnings from his job, and who faces the risk of interruption in such income if he is injured at home, at work, on the road, or elsewhere. Right now this worker enjoys generous protection if he is injured on the job, he has a fair chance of considerably higher recovery if he is hurt on the highway, but he faces very poor prospects if he happens to be hurt at home – and is even worse off if his disability stems from a disease whose source is usually indeterminate. A general plan would give this worker a decent (and considerably more accessible) level of insurance protection against disabling injuries of all kinds and sources, at least if the disability is a serious one. But the price of such vastly improved protection against all these major risks would likely be a reduction in the current level of protection from relatively minor injuries inflicted at work (or on the road). I am satisfied that this is an eminently fair and reasonable price to pay.

What about the other side of the distributional objection? Ontario employers now foot the entire bill for workers' compensation. Suppose that program were to be dismantled in favour of a general plan. It might seem to be an unjustified windfall to relieve employers of their liability for injuries suffered by their employees inside their plants.

It is a fair implication of a social insurance scheme that employees rather than employers should be primarily responsible for paying for the program. After all, it is the employee who is injured, whether at work or home, through accidents or disease. His need for continued income after the injury is met out of the fund, irrespective of the cause or who was at fault. He should be the source of the funds needed to pay for this protection. The appropriate vehicle would be a regular premium calculated as a percentage of income; since income is the best index of the risk being insured by the program.*

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* A perennial issue in the design of a public disability program is what to do about those who are presently non-earners: most prominently, housewives, children, and

While the income-earner should have the ultimate responsibility to pay for this social insurance, certainly there should be no legal bar to an employer agreeing to pay all or part of these premiums on behalf of its employees. Just as they did with Medicare, I suspect that many trade unions would negotiate such an agreement on behalf of their members, and that non-union employers would follow suit. Indeed, in recognition of the fact that employers currently do pay a considerable part of the cost of the present array of disability programs - all of workers' compensation, half of the UIC and CPP programs, varying degrees of group disability and life insurance packages - one could reasonably defend an additional transitional measure. Until the expiry of existing collective agreements, or for a fixed period of time in the case of non-union employees, the law could require employers to expend the same amount of "disability money" in the compensation of their employees. One way employers might discharge this obligation is by providing private short-term sickness or accident protection for the less serious disabilities which are not included in the mandatory disability program. This would insure that the introduction of a general plan, with its reshuffling of existing programs and costs, would not produce an unfair redistribution of income from workers to business. But to the extent that such a program does provide more and better disability insurance to Ontario workers than they now enjoy, it is economically sounder and politically more honest to charge the additional premiums needed to the people who get the benefit of the added protection.*

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the retired. On the one hand, these people suffer real physical impairment. On the other hand, they do not have a present income which gives a measurable index of the kind of loss for which this program gives redress. That fact notwithstanding, these people have a powerful case to be included in a comprehensive plan, especially if one feature of the program is elimination of the right to sue in tort. This means that some kind of notional income levels will have to be set for each of these different categories. In turn, this raises the question of how these "non-earner" benefits should be financed. In principle, the answer is that there should be corresponding increments in the premiums paid by the spouse and/or parent whose income is supporting this family, all of whose members would be insured against disability.

* That last conclusion, together with the discussion in this entire Chapter, stems from an analysis of this issue solely from the point of view of *compensation*. Quite a different judgment might be made from the point of view of *prevention*. We might well want to require employers to pay for all the costs of specifically occupational injuries in order to give them an incentive to make their operations safer. This is a different kind of concern often expressed about social insurance against disabling injuries, one I shall take up in the next Chapter. In the final Chapter, I shall conclude that even if we do adopt a general plan for purposes of compensating the victims of injuries, we should finance the program at least in part out of charges to those enterprises which are involved in especially risky activities, and are in a position to do something about the level of disabling injuries. Assessments of employers for workplace injuries would be retained, then, in an integrated plan which goes beyond pure social insurance.

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Reducing Injuries through Workers' Compensation

A—Introduction

When people debate the question of whether there should be a general disability insurance scheme–one which would incorporate specific programs such as workers' compensation–they tend to focus on the issue of *compensation*: what types of injuries need protection? what is an affordable level of benefits? from whose pockets should the program be financed? and so on. From this perspective a single, comprehensive plan is undoubtedly more equitable and economical than a variety of categorical programs. And, as I argued in the previous chapter, Ontario can afford a decent program of long-term disability insurance.

We must not overlook another vital dimension to the disability problem: *prevention*. Surely avoiding the injuries in the first place is preferable to merely guaranteeing compensation after the fact; money can never make up for the pain and trauma of a serious injury, nor undo a fatality. Compensation is valuable and essential in its own right. We can never prevent all disabilities and must therefore have in place a system for redressing the financial losses they cause. But it is equally important that we design our compensation programs so that they do not interfere with, indeed so that they positively assist in, reducing the injury toll itself.

This is one of the perennial arguments made against a general plan: that by guaranteeing compensation for all disabling injuries out of a broad social fund, we dilute the incentive to avoid the injury-causing action. One tends to encounter this objection more frequently in debate about no-fault automobile plans which would seem to dispense with the personal responsibility of the careless driver (although under the current system it is the driver's liability insurer which actually pays the award). Workers' compensation is already a no-fault scheme, under which injured workers are compensated from a public fund. However, the money for this fund is raised through a payroll levy on employers. This means that the amount of money extracted from an Ontario business will drop if the injury toll in its operations is reduced. Many expressed the concern to me in my Inquiry that if workers' compensation were to be submerged in a general plan, this would eliminate that important financial incentive now faced by employers in charge of the workplace and in the best position to do something about occupational injuries. Others took exactly the opposite position. They argued that the task of compensation should be handled through its own program with its own philosophy and administration; and that the job of prevention should have another statute and agency. Prior to the Seventies, workers' compensation was the major actor in Ontario in the areas of both compensation and prevention. But in the last decade, broad ranging legislation enacted across North America has been specifically designed to prevent workplace injuries. Ontario's major effort in this direction was Bill 70, the Occupational Health and Safety Act (OHSA). Proponents of a general compensation scheme tell us that we can safely rely on this kind of instrument to achieve an adequate level of prevention.

To a considerable extent, this difference of view reflects a broader ideological debate about the best way to prevent workplace injuries.[1] The financing of workers' compensation exerts a discreet market inducement while leaving to the private firm the leeway about how it will respond. This is appealing to those with a bent for free enterprise. It is less attractive to those who feel we need direct regulation of business decisions, and who prefer stiffer enforcement of mandatory standards to enhancing the financial incentive of workers' compensation. Personally, I prefer neither of these polar positions. Legal regulation and market incentives should be viewed not as either-or alternatives, but as complementary tools for grappling with the problem of industrial injuries. Each instrument has its own nature, uses, and limitations. Ideally each should be matched with that segment of the overall injury problem for which it is best suited. The focus of this Chapter, then, is on the question of whether workers' compensation still has a useful role to play in injury prevention, and whether this potential contribution is significant enough to warrant preserving a distinct program for occupational disabilities.

B—Pure Market Control

In a broader sense, of course, both workers' compensation and occupational safety programs are forms of government intervention to deal with the problem of workplace injuries. They are designed to prod employers to take steps to reduce the hazards in their operations. Each assumes that the pure unregulated labour market would not suffice to secure the desired level of employer action.* It is

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*Both types of legislation are focused on the *employer* and its actions, and so also will be my discussion. This is not because I assume that employers are to *blame* for useful to probe why this is so, and to learn from the explanation about the nature of our problem.

From a common sense point of view, the explanation might seem simple enough. Injuries are suffered by the employees. The cost of preventing these injuries is borne by the employer. There is no implication, of course, that employers want or deliberately bring about injuries to their employees. The real problem is the unintentional injury which is produced by a risky feature of the job, but a risk which only occasionally materializes in an injury. To reduce the risk costs money. Supervisors may have to spend more time on safety training and control. Work practices may have to be altered so that employees become less fatigued. New technology may have to be purchased and installed. Any of these steps requires the firm to make a definite and immediate investment of part of its limited resources. What is the hoped-for return on this investment? That the level of injuries may be reduced to some extent at some future time; a benefit which will accrue to those employees who are preserved from workplace injury. In the eyes of many, this distribution of the benefits and burdens of safety investment is inherently likely to tilt at least some employers away from a fully adequate effort to protect their employees. The object of government intervention is to add sufficient incentive on the firm's side of the scale to right the balance.

This intuitive, common sense explanation is a little too facile. It assumes that the firm itself suffers no cost from injuries in its workplace and thus has no monetary self-interest in taking the steps necessary to limit their occurrence. This assumption is incorrect in two respects.

In the first place, while the pain, physical impairment, and loss of

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all or even most workplace accidents. After all, workers' compensation itself is a no-fault system of liability. But the issue is not who is to be held morally responsible for injuries which have occurred in the past, but rather who can practically control this problem in the future. There are specialists in accident prevention who believe that human error is the prime culprit in the majority of cases; who find upon investigation of most accidents that some worker was momentarily careless and inattentive and thus injured himself and someone else. I do not intend to enter this hotly-contested domain of accident causation theory. It suffices for my purposes to note that even human error when it occurs is harmful only because it is taking place in an environment with some hazards. After all, mining produces some fifty times the injury toll that banks do, not because miners tend to be fifty times as careless as do bank clerks, but simply because the mining environment is much less forgiving to the inevitable human error as and when it occurs. And it is the employer which has control over this environment. The firm owns the property, invests the capital, selects the supervisors and defines their priorities, hires, trains, and disciplines the work force. Management is given the prerogative to decide whether the prevention of accidents is to be emphasized at each and all of these levels. It is for this reason that governments, when they do intervene, have focused their sights on the employer who is in charge of the workplace, and left it to the latter to carry the message to the employees who work for it.

income are borne by the employee who suffers the injury, the accident itself can impose certain direct costs on the employer. Its equipment may be damaged. An assembly line may have to be shut down, leaving the machines and people idle for a time. Supervisors and fellow workers will be diverted from their normal tasks to see to the victim and investigate the incident. New employees may have to be recruited and trained to replace valuable and experienced workers who are permanently disabled. This is not to suggest that these production costs to the employer evoke the same degree of social concern as does the injury to the victim. They are real, financial costs nonetheless.

Economic theory goes further to predict that a substantial part of the financial harm immediately felt by injured employees will eventually be transmitted to and borne by the employer. After all, the employer and the injured worker are not strangers to each other (unlike an automobile driver and a pedestrian who meet for the first time in a collision). They are already in an economic relationship in which money is exchanged for services. There is ample room in the employment contract for some payment for workplace hazards and injuries.

This is true, in particular, of occupations in which accidents and injuries are a regular and apparent feature which can be expected to continue in the foreseeable future — in industries like mining, logging, or hydro construction projects. To the extent that these jobs are performed in remote locations, in cold, dirty and otherwise unpleasant conditions, the employer has to pay a premium to recruit workers for these sites, over and above what it would pay them to work in a clean, comfortable environment close to home. The risk of injury or death is an equally undesirable feature of a job for which employers have to pay additional risk premiums. Such a "compensating wage differential", as it is called, is part of the labour cost which the employer must bear. To the extent that the employer can eliminate some of the hazard in its operations, and thus reduce the risk of injury anticipated by its employees, the risk premium will drop accordingly. The prospective financial gain to employers provides an economic incentive to investment in safety even in the absence of government intervention.

In any event, this is the implication of economic theory. Is there any empirical evidence of its validity? One does find in collective agreements the occasional premium paid for more hazardous work: e.g., "height pay" under construction agreements. On the other hand, more dangerous jobs are, on average, paid less than white collar, administrative and technical positions in safe (and clean) environments. This fact does not undercut the theory, which does not imply that risk is the *only* variable affecting employee compensation.

Quite to the contrary! The primary focus of the wage bargain is the value of the employee's work to the firm, which in turn is dependent on both the degree of human capital embodied in the employee (e.g., education, training, skills, and experience), and the profitability of the business and industry in which different types of workers are needed. To the extent the market puts a higher overall valuation on certain occupations — professional, managerial, or technical — which are also intrinsically safer, the larger total wage which the latter jobs command masks the presence of a hazard premium built into the wage for the more dangerous jobs. All that economic theory implies is that any one worker, given his own skill and ability, working in a particular job in an industry with a certain level of growth and profitability, will be paid more if he must work in a high-risk rather than a low-risk occupation.

Unfortunately, when the economic hypothesis is phrased in this carefully qualified fashion, it is much more difficult to test. Econometric studies must first of all obtain data about individual wage rates (ideally, also about fringe benefits which are often more closely dependent on relative risks) and match these up with some measure of the hazard in the individual's job. Then they must find and be able to control for the variety of other wage-determining variables in order to isolate and measure the component of the compensation package which is attributable to the hazard itself. With the recent interest in occupational health and safety and the controversy over the market vs. regulation as alternative policy instruments, a dozen or so studies of this subject (only one of which analyzes Canadian data)[2] have appeared in the last decade.

What do these studies tell us? First of all, there is a broad consensus that a positive and statistically significant wage differential does exist for the risk of *death* on the job. Unfortunately there is a sharp divergence in the estimates of the amount of this premium. One group of studies[3] calculated that an employee in a job in which there is a one-in-one-thousand chance of a fatal injury would receive additional earnings in the range of $1500 to $3500 annually (in the early Seventies). Another group of studies[4] estimates that this fatality premium is much lower — in the range of $200 to $600 a year. Another way to express these findings is from the point of view of the employer. For a firm employing 1000 workers, each additional fatality adds $200,000 to $600,000 to the annual wage bill under the second group of studies, and $1.5 to $3.5 million under the first group.*

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*In the normal course of events one would expect to find some range in the calculations from studies which analyze different data bases according to different statistical techniques (e.g., the kind of range in each of these two respective

Several studies[5] have probed for the existence of wage premiums paid for the far larger category of non-fatal injuries. The results here are mixed as well. While there is some evidence of a wage differential for temporary disabilities and a slightly greater premium for permanent disabilities, these are nowhere near the size of the fatality premium and often not large enough to satisfy strong tests of statistical significance. The one Canadian study[6] of this genre focused on temporary total disabilities (TTD's) in Ontario. It found that Ontario firms which experienced the average accident frequency in the province (44 TTD's per million man-hours of work) paid an additional average wage of $750 (± $300) per year; or about 4% of the average industrial earnings in the mid-Seventies (the period studied). This meant that a firm with 500 employees (or 1 million man-hours worked, assuming an average 2000 hours a year) would pay an additional $8500 (± $3500) in its total annual wage bill for each additional TTD injury which it experienced a year. This finding was surprisingly close to an American study[7] which looked at the same type of injuries in the United States in 1969, and found that the premium paid to the individual employee was between $325 and $420 in 1969 U.S. dollars, and the annual wage cost to the 500-employee firm for the risk of each such injury amounted to $550 (± $1500).*

My reading of this econometric literature convinces me that hazard premiums exist in the wage structure. A number of studies done by different people, using different data bases, even in dif-

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groups). But the stark ten-fold difference between these two sets is startling. What might account for it? The smaller estimates come in studies which measure the risk of the specific occupation of the employee rather than the broader industry, and thus probably give a more precise estimate of the risk actually experienced for which the premium has to be paid. On the other hand, these studies focused only on particularly dangerous jobs, which likely would be accepted only by employees prepared to face a considerable degree of risk. Thus they do not give us a fair appraisal of the premium which would have to be paid to attract more risk-averse people now in comparatively safer occupations.

*If one compares these findings with those reported earlier for fatalities, each additional *injury* for 1,000 man-years worked will cost a firm $2500 in additional wages (in 1969 U.S. dollars) while each additional death is estimated to cost, most conservatively, $200,000, and most generously, $3.5 million (again in U.S. dollars around 1970). Clearly the risk of death is a much more salient event for purposes of wage determination than the chance of a temporarily disabling injury. As well, workers' compensation is available to reimburse the injured worker for much of his lost earnings whereas only the survivors of the deceased workers will collect from the WCB. Needless to say, the latter is not that much consolation to the worker in an industry where there is a definite chance of being killed at work. The wage premium for temporary injuries seems to compensate employees largely for the risk of non-economic loses. Olson[8] found that the anticipated income loss (net of workers' compensation) from the typical disabling injury amounted to only .2% of average yearly earnings while the risk premium was several times as large (7%).

ferent countries, have confirmed the payment of this additional compensation to workers who face added dangers in their jobs. Sharp empirical differences remain about the *size* of these premiums, helping to fuel the controversy about their *adequacy*. Of course, a judgment about the adequacy of risk premiums turns largely on the policy uses to which these empirical findings are to be put.

A number of economists[9] appeal to these risk premiums to buttress their case for greater reliance on the market as the instrument for achieving a safer workplace. It is one thing, of course, to assert that the wage structure provides some financial incentive to employers to reduce the hazards to which their employees are exposed; and thence to try to harness and channel this economic motive to make it more effective. It is considerably more ambitious to claim that these wage premiums reflect the true value which workers put on avoiding the risk of injury or death at work; and thus that we can rely on a self-regulating market as a sufficient spur to the firm to make the optimal investment in workplace safety ("optimal" being defined as the minimization of the sum total of the cost of accidents and the cost of avoiding these accidents). Those economists who are dubious on that score argue vigorously that the market for workplace health and safety is inherently likely to malfunction.[10]

Two distinct types of imperfection are perceived in the operation of the labour market for compensating wage differentials. First, it is asserted, the typical worker does not have sufficient awareness of the injury risk to know the size of the hazard premium which should be demanded. Second, even if he did know, he does not have the economic power to obtain the appropriate premium.

The basic assumption of any competitive market is that people are aware of what it is they are buying or selling. But the *risk* of injuries is quite a different feature of a job than the *fact* that it may be remote or unpleasant. Fatalities, even serious injuries, are comparatively infrequent in almost any job. Thus employees, especially new employees whom the employer would be trying to attract, are largely unaware of the dimensions of the hazard to be encountered. Even long-term employees are often entirely unaware of the risk of long-latency diseases from exposure to toxic substances in the workplace. Nor does the employer have any incentive to disclose the true facts. And even if the employee does learn the actual statistics — e.g., that one employee in 10,000 gets killed on the job — the human tendency is to discount such a remote and unpleasant prospect (irrespective of how serious it is if it actually materializes). For these reasons the size of the hazard premium actually needed to attract new workers to a dangerous job will likely be artificially low in relation to the true dimensions of the risk (by contrast with the kinds of bonuses or amenities which employers must offer to attract new workers to a remote job location whose actual character is readily apparent).

True, unlike the new and mobile worker whom the employer hires regularly, the career employee in an industry or a firm may eventually appreciate the real risks. Seeing what has happened to friends and colleagues is the best antidote to an undue dismissal of the dangers. He will have a much better idea of the size of hazard premium which should be paid. But too often these employees may not have the bargaining power to obtain the wage differential they seek. This kind of employee is likely to be older, to have invested a good part of a working career in this job, to have seniority and other long-service benefits, to have his home and friends close to this job. He is not really able to give up this job in favour of a safer one (and, in a period of persistent unemployment, such jobs become less and less available to the older worker in any event). Thus, the employer does not have to pay the higher hazard premium to keep the very employees who are in the best position to know what the true dangers should be worth.

There are ways of ameliorating these imperfections in the labour market — in particular, collective bargaining.[11] Trade unions can act as collectors and disseminators of information about the nature and degree of industrial hazards. They can act as the voice of the average long-term employee in wielding the bargaining power of the group to establish a more prominent role for hazard pay in the overall compensation package. The empirical studies have confirmed that unions are one of the crucial factors in achieving meaningful wage differentials for dangerous jobs. Indeed Olson[12] found that the fatal accident premium for unionized workers averaged 9.6% of weekly earnings for firms of average risk, compared to 1.6% of earnings in comparable non-union firms. This implies that the market has "valued" the life of union workers at $8 million compared to $1.5 million for the non-union worker. No better testimonial can be found to the way in which these premiums are dependent on the vagaries of information and power.

C — Workers' Compensation as a Compensating Wage Differential

This debate about the size and adequacy of risk premiums is artificial insofar as it ignores the existence of workers' compensation. Indeed the economist might well picture workers' compensation itself as a governmental substitute for market-determined wage differentials for job dangers (whereas the lawyer typically sees this program as the substitution of strict liability for fault as the basis of employer responsibility for workplace accidents).

Certainly the economist's perspective is apt from the point of view of employers. Ontario employers pay for workers' compensation through assessments on their payroll. These assessments are not a single flat rate for all employers (which would now average about 1.80%). Instead they are based on the compensation experience in the industry in which the firm operates. This means that mining and logging firms, for example, pay premiums of up to 10% or so of their assessable payroll, while the far less dangerous accounting or insurance business pays at a rate of just 0.20%. This variance in assessments, based explicitly on comparative industrial risks, dominates any variation in market risk premiums. The compensation differential does not find its way into the employee's pay cheque (although, as I shall note in a moment, it is the functional equivalent of a fringe benefit for the employees). But these assessments are definitely part of the firm's labour costs, and variations in their size and trend could serve as a tangible market incentive for employer investment in a safer workplace.

From this perspective workers' compensation actually operates as an initial form of government intervention designed to repair the imperfections we saw in the previous section in the private market for hazardous work:[13]

(i) *Information:* I said earlier that the ordinary worker is often unable to gather precise information on the comparative dangerousness of different occupations; a task which would require knowledge of the frequency and severity of injuries in the relevant range of jobs. But the WCB computer accumulates all of this information as injury claims flow in and compensation cheques are mailed out. Its assessment department reduces this huge volume of data to a bottom-line calculation of the relative hazard level of different industries when it sends the assessment bills out to employers.

(ii) *Power:* Even if the employees could learn the true difference in risk between one job and another, there is no guarantee that they would have the bargaining power to extract the appropriate risk premium on their own. But the WCB uses the legal authority of the state to mandate that all employers in the jurisdiction pay the statutorily defined cost of the hazards created by this type of business. None of this is subject to the vagaries of unemployment, unionization, and other factors influencing the labour market.

(iii) *Equity:* A system of workers' compensation responds to another troublesome feature of market wage differentials,

> one that I did not mention earlier. In theory, the size of these risk premiums is a function of the total cost of injuries in that operation, discounted by the statistical likelihood that the injury will be inflicted on any one employee. In a perfectly competitive world, the sum of additional wages paid to all employees would match the total cost of the accidents to those employees who are actually injured. But there is a distributional problem here. The additional compensation for the risk is paid to all employees, but the accident costs are borne only by those workers unlucky enough to be injured. The economic theorist may console himself with the thought that any employee who wants to protect himself can buy disability insurance against the risk, and the hazard premium in his wages should be just enough to pay for the insurance premium. In the real world, most employees would not and do not react in this manner. We saw in the previous chapter that they rarely purchase individual disability insurance for the additional risk not now covered by the WCB. This leaves us with the human and social problem of what to do about the workers and their families who are singled out by fate for a serious workplace injury.*

Society responds to this problem by creating workers' compensation, a form of compulsory disability insurance for all workers. The state requires the employer to purchase public insurance for all of its employees. The pool of funds accumulated from these employer premiums is then drawn on to redress the losses of those workers who are actually hurt. In this sense, then, economists picture workers' compensation not just as an additional employment cost to employers but also as an additional benefit to employees. The availability of this program — public disability insurance paid for by their employers — means that employees do not have to use part of their take-home pay cheque to purchase this protection (at a considerably higher cost if done on an individual basis).**

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*I do not mean to suggest that it would be impossible for the private labour market to generate disability insurance for workplace injuries. Indeed, many firms now "top off" the workers' compensation benefits received by their injured employees, to the extent these do not fully replace the wages actually lost. But just as is true of group insurance against non-occupational disability, the likelihood that an injured employee would enjoy this kind of protection is highly dependent on the nature of the firm in which he works, especially on whether it is unionized.

**Workers' compensation, then, is analogous to employer-paid premiums for public health insurance or private group sickness and accident plans, both of

In summary, then, workers' compensation serves as a public antidote to the imperfections in the private labour market. It avoids the chance that some employers might impose upon their employees the financial risk of occupational injuries, thus diluting the market incentive faced by that firm to invest the resources needed to enhance the safety of its plant.*

An important question remains: what financing mechanism should the compensation program use to implement this objective of reducing the level of industrial injuries.

One possibility would be a tax on business profits. If the only reason for requiring employers to pay for workers' compensation was the fact that this system was the trade-off for immunity from traditional, fault-based tort liability, this would seem to be the appropriate mechanism. It does, after all, best reflect the firm's ability to pay. Instead, workers' compensation has always been financed through a levy on the employer's payroll, something which seems natural when one appreciates that this is a form of disability insurance and that the risk insured against is a function of the size of the payroll (the number of employees who might be injured at work and the amount of wages they might lose as a result).**

But the level of insured risk is not just a function of the size of an employer's payroll. It also varies with the hazardousness of its work. It is for this reason that Ontario employers do not all pay compensation premiums based on a single flat-rate percentage of payroll. Instead, the relatively dangerous mining, logging, or construction industries pay assessment rates which are 50 times as large as the safe white-collar industries such as insurance or accounting. Each year the WCB calculates assessment rates which are based on the actual cost of compensating the injuries

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which are clearly part of the compensation package paid for and received by labour. For this reason, to the extent that the program pays for a greater share of the actual cost of workplace injuries, it leaves less room for private compensating wage differentials. This is why economists reason that workers' compensation is ultimately "paid for" by the workers themselves; since it functions as a substitute for a premium which otherwise would have to be included in the wage rate.[14]

*This argument implies that workers' compensation should fully compensate injured employees for the losses which they suffer. To the extent that some of the burden is left on injured victims, and the labour market is not adequate to build this end of the wage structure, this legal shortfall in workers' compensation means that the firm will not receive the correct market signals about the "optimal" level of investment in safety.

**One implication of the use of the payroll assessment instead of a business profit tax is that under the former, but not the latter, firms can reduce the size of their contribution to the program by reducing the amount of labour which they employ, perhaps through capital investment and labour-saving technology.

engendered in different industries. The firm which is charged this premium treats it as one of its production costs to be incorporated in the price charged for the end-product. The product prices of the more dangerous industries will better reflect their true social costs, which might otherwise be borne by the injured workers and their families (or by society generally, through programs such as Medicare). Consumers, in turn, face a monetary inducement to purchase goods or services which are relatively cheaper precisely because they are safer to produce. Assuming that some degree of substitution takes place (depending on the availability and affordability of substitutes), this will tend to reduce the level of production and employment in the more dangerous sectors, thus generating a lower overall injury toll. In addition, firms in the more dangerous industries should have a real financial spur to improve the safety of their operations in order to maintain the competitiveness of their product lines. In principle, then, the existence of a distinct program of workers' compensation for occupational injuries — in contrast to a general system of social disability insurance funded by the community as a whole — should enhance the effectiveness of the market in allocating society's resources to reduce the level of occupational disability to an appropriate level.[15]

But there is a gap in the financing mechanism at precisely this point. The Ontario WCB uses an *industrial* rating system to differentiate between one industry and another in terms of their comparative injury rates and compensation requirements. With one terribly modest exception (to be described later), it does not use an *experience* rating system to differentiate between individual firms in the same industry in accordance with their record of compensation costs. The thrust of the Ontario program is collective insurance by industrial category: all of the firms in a particular industry are assessed at the same percentage rate, and the funds are pooled to compensate all of the employees injured in that industry.

There are pragmatic reasons why the Ontario Board has been reluctant to differentiate assessment rates on the basis of individual firm experience. I shall state and address these reasons later on. For the moment I want to make clear how inconsistent this is with the principles of workers' compensation which I have been tracing. Recall that the program differentiates starkly between mining and accounting as *industries:* because one is far more dangerous than another, this should be reflected in their costs of production and the prices they charge their customers. Ultimately this serves as a market incentive to workplace safety. But the overall accident level in an industry is simply the sum total of the experience of all of its firms. The percentage assessment rate is just an average calculated by the WCB to raise the funds necessary to pay for the compensation cost of this industry. However, just as the compensation rate generated by different industries varies acutely, so also does the actual experience of different firms in any one industry. It is inherently arbitrary, then, to require each firm to bear the same assessment rate.*

Not only does it seem inequitable to ignore an individual firm's record in calculating its compensation premium but it is counterproductive with respect to the objective of reducing the level of accidents suffered by its employees. The argument I have been making is that our justification in retaining workers' compensation as a distinct disability program (separate and apart from a general disability insurance scheme funded out of ordinary tax revenues or individual premiums) is that it generates some market incentive for safety. The decision to use an industrial classification scheme instead of a flat payroll tax (or even a business profits tax) must rest on this objective: to reduce the injury toll by inducing consumers to substitute products which are safer to produce and thus cheaper. This is indeed a long-term process. It will likely be effective only where there are gross variations in the danger of producing different goods and services which are reasonable substitutes for each other. If market incentives are to have any real effect, they will have to be felt at the level of the individual firm. This is where decisions are actually made about whether to introduce new safety practices and precautions. This is also where the gains from effective safety innovation must be enjoyed if the expenditure of some of the firm's resources in this manner is to appear economically worthwhile.

The problem with the current industrial rating scheme is that it acts as a disincentive rather than as an incentive. Suppose that a firm is considering investing in supervisory or employee training programs, or certain engineering safeguards in the production process. It calculates that the innovation will cost $100,000 per year, but believes that it will reduce the injury toll among its employees by $200,000 a year. This savings of $200,000 per year will be reflected in the total compensation costs of the firm's industrial rating *group,* of which, let us assume, this firm represents just 10% of assessable payroll. This means that from the point of view of the company's comptroller, the firm will be spending $100,000 a year to save itself only $20,000 in compensation premiums. Even worse, the other firms in the rate group – who by definition are its closest competitors in the province – will get the same $20,000 savings without having to spend a nickel themselves. No doubt many firms would introduce the safety program and practice in any event, especially if there was clear-cut evidence of its effectiveness, without making a close calculation of financial gains and costs. But the point is that the additional inducement of making a profit (which one has to assume has some significance in a free enterprise economy) has been dissipated. The economic promise of workers' compensation was that it would force the firm to internalize the cost of its production-related injuries, rather than leaving them to be borne by its employees. The trouble is that if a WCB uses pure industrial rating, it permits the firm which is unwilling to spend the necessary sums to protect its workers, to externalize its higher than average injury costs onto all its fellow firms in the industrial classification. As economic analysis demonstrates, the presence of "free riders" in such a market means that private action (which here must mean employer action) will generate nowhere near the degree of safety investment which would be optimal from a social point of view.

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*Indeed, this arbitrariness is aggravated by the fact that the industrial rate is itself a function of the degree to which the WCB chooses to classify and subclassify. In the text I have been referring loosely to the rate levels in construction and mining. In actual fact the Board calculates separate rates for uranium ($9.50) and iron ($2.75) mining, for example, or demolition ($12.95) and electrical wiring ($2.75), rates which differ markedly. The Board then applies this group rate to any firm which fits into this category even though (as I will show later on) the compensation cost generated by any one firm might justify a far higher or far lower individual rate.

D—The Varieties of Regulation

The implication of the foregoing argument is that government use of a system of compulsory workers' compensation based on industrial assessment ratings attenuates the potential for market containment of workplace hazards.*

To spur industry efforts towards a safer workplace, governments must substitute systematic and direct legal controls for indirect market influences. Major programs of occupational health and safety regulation emerged in North America in the Seventies, including Ontario. There are people who disapprove of the idea of enhancing the market potential of workers' compensation, especially by basing a firm's assessment on its individual injury experience. They believe

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*I do not mean to suggest that such government action is perverse. There are plausible *insurance* reasons why a system of pure individual firm assessment would be unsuited for workers' compensation, just as it is for other insurance programs. Later I shall explore and evaluate the validity and weight of the countervailing factors.

we can and should rely on legal regulation as a sufficient measure for protecting Ontario workers (at least if the standards and enforcement of the current program were to be enhanced). Thus, before delving into the pros and cons of experience rating itself, we must first consider legal regulation – its nature, varieties, and effectiveness – to see whether it leaves any useful prevention role for workers' compensation to play.

What I mean by legal regulation is that a public official, rather than a private firm, makes the judgment about whether a certain type of safety precaution must be used or a certain hazard must be avoided. The official mandates this line of behaviour on pain of some legal sanction being exacted. Such regulation takes one of two forms: common law tort liability or statutory-administrative regulation.[16]

In Canadian employment law, the common law of torts was long ago dispensed with in favour of workers' compensation. In principle, tort law can play a significant role in reducing the risks of consumer product defects and environmental hazards. In the United States, tort suits by injured and diseased workers have recently emerged into prominence through product liability suits against manufacturers of hazardous equipment or substances which have been supplied to the workplace (e.g., against the Manville Corporation, the manufacturer of asbestos products). A number of voices have urged that such suits be permitted under workers' compensation in Ontario. My object here is not to dwell on this specific issue. I simply want to sketch the key ingredients of the tort instrument as a counterpoint to a detailed appraisal of administrative regulation, which is now the preferred instrument under OSHA-type legislation.

While we usually picture the role of tort law to be compensation of the injured victim, it has an implicit regulatory cast. The reason is that a plaintiff is entitled to collect damages only if he can first show that the defendant was at fault in some way in causing the injury. What the law means by *fault* is, simply, undertaking a certain action (or failing to adopt a certain precaution) which creates an unreasonable risk of danger when weighed against the need for the action (or the failure to use the precaution). As its proponents argue, such a common law regime would seem to generate a monetary incentive to defendants to take reasonable care in order to avoid the prospect of paying for the cost of injuries.

When viewed as a regulatory device, tort law has a number of virtues. The broad legal standard, "reasonable care", permits meticulous appraisal of all the circumstances of a particular accident and its setting, in order to determine precisely what degree of precaution was appropriate. This examination is triggered if, and only if, the actual victim of the accident — not some government bureaucrat — decides that he has suffered sufficient injury to make such legal scrutiny worthwhile.

To its critics, tort law has the vices corresponding to these virtues, especially in dealing with the complex hazards of modern industry. First of all, the external appraisal of the degree of care exhibited by the firm in its operation takes place only if there has been a mishap, after the fact. It is subject to the happenstance of whether this produced an injury with sufficient potential damages to attract litigation by a victim with the resources to launch a law suit. The parties responsible for administering tort law — the judge and/or the jury — start out quite unsophisticated about modern technology (as contrasted with their everyday experience in driving a car, for example). They must be educated within the strict confines of an adjudicative trial, which is inherently prone to focus on the immediate events precipitating the injury and to ignore the background environment which made these actions especially risky. Finally, even if these hurdles were overcome and some sensible guidelines (for product safety, for example) did emerge from fault-based tort litigation, the widespread use of private liability insurance — under which tort damages are actually paid from a collective pool of money contributed by all such firms, safe and hazardous alike — dilutes the incentive to follow those guidelines in precisely the same fashion as does public workers' compensation insurance.

A good way of understanding administrative regulation is to consider its design as a response to each of these flaws in tort litigation. Rather than make case-by-case-judgments about concrete incidents which are not delivered until after the damage has been done, general administrative standards are formulated to guard against this type of injury before the fact. Rather than rely on lay judges and juries, whose sparse acquaintance with complex problems comes only through an artificial, adversarial trial, administrative judgments are made by officials who are specialists in the field and have reached their conclusions about what should be done after a systematic study of all facets of the problem, not only those which were prominent in a particular event. Rather than rely on the chance that a dangerous action inflicted a significant injury on a person who is willing and able to sue for personal damages, these administrative directives are enforced by systematic programs of public inspection, prosecution and fines. And, unlike tort damages, these quasi-criminal fines cannot be insured against. They must be paid by the guilty firm itself. In principle, such a system of administrative regulation would seem to be the most sensible technique for controlling dangerous behaviour, not only in motor vehicles but even more so in the perilous world posed by modern technology for the worker, the consumer, and the general environment.

E — The Effectiveness of Regulation

Theoretically, administrative regulation seems to be the soundest manner in which to proceed in pursuit of a safer workplace. In practice it faces a difficult challenge. The regulator must first identify the hazard; next, devise precautions which will contain it without undue damage to other values; then state these standards of behaviour in a legal form; and, finally, establish credible sanctions which will persuade any reluctant firms to comply. Each of these tasks is much easier said than done. In real life, health and safety regulation excites controversy at every step of the way. Nowhere has this been more true than in the United States; where OSHA, in its brief decade of existence, has been assaulted simultaneously as too burdensome and costly to the employer and as too weak and ineffective for the worker.[17] Recently the analysis and the rhetoric generated by this American debate has spilled across the border into Canada.[18]

The initial critique of OSHA-type regulation in the United States is along these lines.[19] A legally enforceable health and safety standard must articulate a type of precaution which will apply *generally* to all the firms in a particular industry (or even the economy), wherever the hazard exists. At the same time it must be expressed with sufficient *specificity* to let people know what they must do to avoid prosecution, and so that inspectors can decide whether there has been a violation. The problem is that there is such a tremendous variety in real-life situations — in the size and location of the firm, the age and design of its equipment, the skill and experience of its work force, the economic situation of the industry — that inserting a single binding rule inevitably produces many an awkward fit. In any one plant the precaution which is mandated may not be the most reasonable means of avoiding the hazard aimed at, or the investment required to eliminate this danger may seem far out of line with the marginal risk which might possibly exist there. As well, many accidents and injuries are of a type that can hardly be avoided through precautions which can be written into a general legal rule. These require instead close attention to the nuances of particular operations and work practices in individual firms or work groups. The problem is that both the individual firm and the economy as a whole have only a finite amount of resources and attention to devote to limiting injuries from production, consistent with maintaining the level of production which consumers want. Yet if these resources are devoted to complying with legal standards of limited scope and efficacy, this may have major opportunity costs to our overall achievement of safety itself.

It would take me far afield to deal with the challenge posed by this critique of regulation. It raises profound questions about how absolute a value we place on safety when it is terribly costly to guarantee it; about the morality of sacrificing the life or limb of some unknown worker in order to deliver somewhat cheaper consumer goods to the marketplace; about whether we should put an Ontario industry entirely out of business in order to save its workers from some incremental statistical risk.[20] These types of issues are probably more usefully pursued at the level of tangible, real-life problems, where we are unlikely to encounter apocalyptic either/or choices (e.g., the type of inquiry now being conducted by the Royal Commission on Asbestos). Not only in Ontario, but everywhere in North America we are committed to regulatory programs which provide some external governmental scrutiny — on behalf of not only workers, but also consumers and inhabitants of the general environment — of the health and safety implications of private production decisions. In any event, much of the American debate — engendered by an OSHA program with vast numbers of rigid specific standards — is not terribly pertinent to the considerably more relaxed "performance" approach of the Ontario model.[21] The tone of the latter is implied in the "equivalency" provision in its Regulations, permitting variations from the "composition, design, size and arrangement of any material, object, device or thing prescribed in the Regulation... if the factors of strength, health and safety are equal to or greater than those in the procedure... prescribed".

For my purpose, the key question posed by the debate about regulation is not whether on balance it is *worthwhile*, but rather whether it is *effective*. Can regulatory standards make major changes in firm behaviour and thus reduce the injury toll among workers? This question is important because upon it depends the judgment whether OSHA-type regulation is a sufficient instrument for this purpose, or whether we need the complementary effort of workers' compensation incentives.

To the extent that we have empirical evidence on the impact of safety regulation, almost all of it comes from studies of the Occupational Safety and Health Act in the United States. This program provides us with considerable useful material about the potential and the limits of this legal instrument. But because the American OSHA has some peculiar features, the lessons we draw from its experience must be carefully sifted and appraised.

There have been three studies of the general impact of OSHA on the injury rates of firms subject to the law. I should note at the outset that this is a difficult topic to research. One cannot simply compare injury rates before and after the introduction of the program in 1970 and impute all that happened later to the law. Not only is there the special complication that OSHA changed the procedure for gathering and calculating injury data, but in any jurisdiction the overall injury rate depends on a variety of factors which themselves may be changing in the period under study. Was the business cycle in an upswing (when average injury rates tend to rise) or in a downturn (when the opposite is true)? Was growth in the economy and employment heavier in the more dangerous manufacturing and construction sectors, or in the safer white-collar and service industries? Is the composition of the work force weighted toward younger, inexperienced, sometimes daring workers or toward the older, better-trained, and perhaps more cautious employee? A sophisticated study of the impact of a safety program must develop a pre-statute model of the determinants of workplace injuries, use the equations of the model to predict what the injury rate would "naturally" have been without the law in the period under study, and then compare these predicted figures with what actually happened. All three of these studies followed this procedure. Having done so, none of them found a positive and statistically significant impact of OSHA on injury rate trends from 1970 through 1975: neither for the private sector as a whole, nor for the manufacturing industry, nor for the groups of firms subject to the Target Inspection Program, nor for specific states such as California or Wisconsin (where the manner of reporting injuries was not materially changed by OSHA).

While these findings may seem startling on the surface, there is a plausible explanation for them. This program tries to force employers to cease using work practices, or to adopt safety precautions, which the firm had previously not found financially worthwhile. The law has now added a thumb to the scale: the threat of a legal penalty. But the degree to which this is a threat depends on the size of the fine discounted by the risk of being caught. In the United States, the OSHA administration has only 1200 federal inspectors for some 3 million American workplaces covered by the law. Any one plant will be visited only once every 50 years, although any one worker would see an inspector every ten years, since OSHA concentrates its efforts on the larger firms. Since the annual risk of inspection is so slight, the size of the penalties becomes even more important. Under OSHA, the average fine per violation (as cited by the inspector) was $25, and $150 per establishment inspected. For the average firm, then, the annual discounted penalty risk amounted to $2.50 per violation, or $1.50 per establishment.[23] Neither of these numbers would seem to generate near the incentive needed for meaningful firm investment in safety.*

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*One might respond that this assumes too calculating a posture from the employer. Irrespective of the financial threat of a penalty, many firms might obey

The credibility of the Ontario program is somewhat stronger than these figures would suggest about the American.[24] There are three different Ministry of Labour branches and regulations: one for mining, another for construction, and a third for the rest of industry. The Industrial Safety Branch monitors 70,000 establishments with 3.75 million workers. Its 125 inspectors do 50,000 inspections a year, issuing orders in one plant out of three, although they obtain less than 80 convictions with an average fine of less than $2000. The Mining Safety Branch covers 6000 mines with 60,000-odd employees. Its 30 inspectors average one inspection per year for each mine (considerably more than this for the larger mines), issuing an average of one order per site inspected; but producing only 10 or so convictions for $1000 fines. The Construction Safety Branch has 100 inspectors for 10,000 projects and 200,000 workers. It visits each project an average of 6 times a year, issuing orders 20% of the time, and obtaining 300 convictions for an average fine of $500. In sum, Ontario has mounted a much more vigorous OHS program, with more than 250 inspectors to protect a work force of 4 million people (as contrasted with the 1200 federal inspectors in the United States who are responsible for a covered work force of 60 million people). The overall likelihood of inspection in Ontario is one a year per establishment, rather than just one every 10 years as is true in the United States.*

This difference is significant when one considers two other studies of OSHA which examined its impact on those firms which were actually inspected. The first study[25] found that, on average, inspection in 1973 of a plant with 300 employees had produced by the end of 1974 a 2.5 decrease in the number of annual lost-time injuries in the plant, or a 16% drop (this effect being even stronger among the more hazardous and the smaller plants).** The most recent publish-

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simply because the law has been passed. The statute may have an institutional impact within the firm by giving the safety director, the employees, or the union a reference point from which to insist that a standard be complied with, irrespective of how the cost compared with the discounted risk of a fine. Be that as it may, the two studies (below) which looked specifically at firms that had been inspected found that full compliance was rare before inspection, even several years after the legal standards were first promulgated.

*The average level of fine is not really so different when one takes account of the structure of the two programs. Under OSHA in the United States, the inspector issues on-site citations which specify a fine (subject to appeal to an administrative tribunal). Over 98% of these fines are classified as "non-serious", averaging under $20 each in the early Seventies. The less than 2% of "serious" violations produced average fines of $645, and willful and repeated violations, fines of $1100. The latter two categories are the better analogy to the fines in Ontario, which are meted out only by a judge in the exceptional case of prosecution and conviction, and for these the Ontario figures are comparable.

**This study found that the effect of 1974 inspections was considerably weaker, 0.8 (or 5%) fewer lost-time injuries in the plant, a figure which is only one-third ed study[26] has found the sharpest effect of OSHA inspection. This studied the effects of inspection from 1970-76 in manufacturing plants in Maine. After controlling for other variables, this study found that the average days lost for injury per employee decreased by .68 days in the plants inspected, while it increased by .36 days in plants not visited by OSHA. What this means is that inspection of a plant of 300 employees or more had produced, by the end of 1976, an average reduction of 350 days in the annual number of days lost due to injury in the plant — a drop of fully 35%.

What I find significant in the last two studies is that actual inspection seems to be the key variable through which regulation has had an impact on workplace safety in the United States.[27] Since the incidence of inspection in Ontario is about 10 times as high as it is in the United States, the potential of this province's program would seem to be much greater. On the other hand, we do not know whether the impact of a visit from the Ministry of Labour wears off after a period of time; nor whether the marginal efficacy of inspection declines as this is used more extensively. (It is a fact that the likelihood of a firm's receiving an order from an inspector in Ontario is much less than the likelihood of a citation in the United States.) Certainly the overall injury rates in Ontario give us no reason to believe that the program changes in the last five years have had a dramatic effect. We do not have any sophisticated econometric studies which have probed beneath the surface of these often deceiving aggregate rates to test for the actual independent influence of the law.

Additional reason for some scepticism in this regard is to be found in a more refined study conducted by Mendeloff.[28] He distinguished between injuries which are preventable by employer compliance with OSHA standards and those which are not. Prime examples of the first category are cases involving workers who get caught in or between machinery, or who are hurt by an explosion or electrical shock. The best examples of the second category are cases of strain and over-exertion, or workers who are injured by motor vehicle accidents out on the general highway. A fair test of an OSHA-type program would isolate the first type of injury and analyze the impact of the new law on this group alone. When he did so (for states such as California and Wisconsin where the data were available), Mendeloff found a sharp 20% drop in the injury rates in the caught-in-between, explosion, and shock categories; but this

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the impact of the 1973 inspections and not statistically significant in this sample. Smith speculated that inspections in the later year had a declining impact because OSHA was by then getting around to the less hazardous firms.

drop was masked by countervailing trends in the strain-and-overexertion category (which he suggests may have been associated with substantial increases in compensation benefits at that time).

The problem is that because these "controllable" injuries amount to only 10% to 15% of the total,* even a 20% improvement generated by the law could have only a 2-3% impact on the aggregate injury toll (which, in the United States, translated into the prevention of 40,000 to 60,000 of the 2 million disabling injuries per year, and prevention of a slightly higher proportion of the fatalities). It is important to appreciate that legal regulation can have such an independent effect even though this may not be easily discernible in economy-wide studies which must try to control for other demographic and economic trends. It is equally essential to realize that a regulatory program based on legally enforceable standards is capable of treating only a limited part of the overall problem of workplace injuries. Regulation leaves ample room for additional approaches.

F — The Internal Responsibility Model

The point just made is illustrative of the general dilemma of any regulatory program. The reason for legal regulation is the widespread belief that external public scrutiny of work practices and technology is necessary to strike the proper balance between the level of safety for the worker and the level of profits for the firm. But there are inherent limits in the degree to which an outsider can actually transform the hazardousness of an ongoing enterprise. Too many injuries are produced by transitory hazards which arise in a particular situation or which are peculiar to a single operation. Rather than rely simply on a legal rule written at Queens Park and enforced through occasional visits from a government officer, one also needs to foster the exercise of good judgment and concern for safety among the people who are actually involved in the enterprise.

To the extent that there is anything distinctive about the Canadian approach to occupational health and safety, it rests on this premise. By contrast with OSHA in the U.S., regulation in Ontario tends to be much more of the "performance" type.[29] The law enjoins the employer to "take every precaution reasonable for the protection of the worker" (S.14(2)(g)), but allows the firm to substitute *equivalent* measures which the firm judges will provide equal or greater protection to that afforded by the specific regulations. Vague performance standards are not as well suited to a program founded on legal obligations enforceable by quasi-criminal prosecution. But they fit well with the "internal" responsibility model which Bill 70 set out to nurture within the enterprise itself. The centerpiece of this regime is the joint labour-management safety committee, which is designed to elicit the efforts of both manager and worker (and trade union, where there is one) in identifying and reducing the hazards of the workplace.[30] The primary tool is self-regulation by the parties themselves. The expressed philosophy of the Ministry is that it is to be "less of an enforcer and more of a resource to both parties... to offer support to internal responsibility systems, to monitor and audit operations, and encourage self-compliance." The Ministry itself would intervene "as a last resort... only when the parties to a given situation are not able to resolve the health and safety issues themselves."

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*An analysis done for me of the Ontario injury rates suggested that the proportions are roughly comparable here.

The case for this "internal responsibility" model is a plausible one, resting as it does on the diagnosis that external regulation is not *sufficient* (although it may well be effective as far as it goes). Some empirical confirmation exists for its likely efficacy. In their study of injury rates in Maine manufacturing plants, Cooke and Gautschi also looked at the impact of voluntary union-management safety committees.[31] They found that these tended to be introduced in the largest plants with the poorest accident records. While they found no statistically significant impact in plants of 200+ employees, they did find a powerful effect among the firms of 300+ employees: a drop of 1.06 days lost per worker due to injury, as compared with an overall 1976 average of 1.38 days lost per worker. Indeed, this finding was so dramatic and so startling that the authors hesitated to place too much confidence in it until it had been replicated elsewhere. (As of yet, we have no empirical evidence of the results in Ontario or Saskatchewan where these committees are mandated by law.)

Even under this worker participation approach, there remains the problem of incentive. On the face of it, the conflict of interest between labour and management on the subject of workplace safety ultimately comes down to the fact that labour bears the cost of injuries and management bears the cost of avoiding these injuries. I do not suggest that health and safety always has this adversarial character. I noted earlier that accidents cost employers money in lost production time, damaged equipment, diversion of supervisors, recruiting and training replacements, *et al.* At the same time, employees may see that if their employers are forced to adopt highly uneconomic precautions, this can cost employees some income and even jobs. Thus there are situations in which cooperation between the two sides can produce mutual gains. But in an irreducible range of situations, the focus of the employee will tilt towards enhanced safety, and that of the employer towards preserving production efficiency.

Under the "internal responsibility" system, the Ontario employer retains the final say. Its employees have been given a defined statutory right to refuse to work under dangerous conditions. But this is a personal defensive right of the individual to protect himself against immediate danger. It is not a collective offensive power of the employees as a group to shut down an entire plant until a particular hazard is remedied. And it is inherently unlikely that either the right to refuse or even the joint committee would ever touch on the key decisions about the goods to be produced, the technology to be used, the design of the building, or the organization of the work. These are the key variables determining whether momentary personal inattention or occasional equipment failure will produce a serious injury or not. These remain the ultimate prerogative of Ontario employers, not significantly influenced by the employees, and inherently difficult for a government to regulate through legal standards.

G — The Potential of Experience Rating

With this long detour through the complexity of *regulation* and *participation* as instruments for promoting workplace safety, we can now return to our examination of the potential of workers' *compensation.* The central problem remains how to generate meaningful incentives for employer investment in safety. Specifically, what is the comparative potential of the mechanism for financing workers' compensation in eliciting such a safety effort. As I explained earlier, the WCB would have to go beyond its traditional method of industrial classification — with its implicit subsidy of the more dangerous by the safer firms — and take account of the actual experience of the individual employers in calculating the WC assessments owed. Suppose the Ontario Board were to take this step. What would be the degree of financial incentive thus generated for firms in Ontario?

In absolute dollar terms, the potential premium incentive is a function of three variables: the size of the firm's assessable payroll, the dangerousness of the industrial process, and the deviation of individual firms from the industry average. We undertook a detailed analysis of WCB data regarding each of these factors.

There are 108 industrial rating groups (plus another 10 silicosis rates), whose premiums range in amounts from $.20 (for accounting and other white collar businesses) to $18.00 (for the business of sinking mine shafts). Of these groups 49 (or 45%) are assessed at a rate less than 2% of payroll, 41 (or 58%) at between 2 and 5%, 15 (14%) at between 5 and 10%; and only 4 (or just 4%) at more than 10%.* Of the more dangerous classifications, five are in mining and one is lumbering and logging. But outside the resource extraction sector, the high injury rate groups are dominated by small firms, particularly in construction. Full experience rating is not feasible in these classifications because, as we shall see, the compensation experience of a small firm is not a credible index of its safety performance. On the other hand, of the considerable number of medium-danger industries (rated at 2% plus), some have large firms which can be fully experience rated (e.g., the steel and automobile industry), and for whom the resulting dollar values might well be worthwhile.

To test this implication of full experience rating for a selected number of such firms, the WCB gathered their individual compensation costs from 1978 through 1980 and compared the individual with the industrial average. This firm/industry ratio was then applied to the estimated 1982 premiums to determine what would be the actual surcharge or refund if full experience rating were now in place. Table 1, at page 112, depicts the strongest results.

In a number of key Ontario industries, substantial refunds would be earned by one firm and surcharges paid by another. The largest absolute figure was found in automobile manufacturing, in which one company would receive $1.6 million a year rebate under full experience rating, while another would pay an additional $2.6 million surcharge; for a total differential as between these two competitors of $4.2 million a year. Similarly, full experience rating in nickel mining and smelting would produce a net advantage for one employer of nearly $3 million vis-à-vis its competitor, and in meat-packing a swing of $2 million in favour of one company as compared with another. Besides the several other industries in which the combination of refunds and surcharges totalled about $1 million or more, in a number of industrial rating groups especially safe firms would have earned rebates of hundreds of thousands of dollars without

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*These class rates actually cluster in different industrial groups within which there is a considerable range of premiums. In mining, for example, one finds uranium at $9.50, gold at $8.40, nickel-copper at $7.25, iron ore at $2.75, and a miscellaneous "other" at $4.80. Forest products ranges from lumbering at $8.30, to sawmills $3.40, plywood and veneer at $2.30, and pulp and paper at $2.00. Construction includes demolition at $12.95, painting *et al* at $5.40, bricklaying at $4.75, landscaping at $2.95, and electrical wiring at $2.20. Manufacturing includes car shops at $6.75, agricultural implements at $2.60, auto and bus manufacture at $2.60, and airplane assembly at $.85. This range of rate categories within a single industrial group suggests something of the artificiality of excluding the actual experience of individual firms from all consideration in setting premium rates.

Table 1

Number	1982 Rate	Firm	Estimated Refund + Surcharge -	% of Estimated 1982 Assessment	% of Estimated 1982 Payroll
306	$2.90	A	-2,568,300	39.1	1.13
		B	+ 1,594,600	12.6	0.37
76	$7.35	A	+ 1,470,200	23.7	1.74
		B	-1,173,200	6.1	0.45
440	$3.60	A	- 969,200	46.5	1.67
		B	+ 940,600	46.4	1.67
162	$3.30	A	+ 937,200	14.2	0.47
		B	+ 830,000	9.6	0.32
001	$8.80	A	+ 468,900	29.6	2.61
		B	+ 358,200	21.3	1.87
854	$5.45	A	+ 521,800	63.4	3.46
		B	- 349,200	74.0	4.03
246	$2.15	A	+ 365,400	36.1	0.78
		B	- 369,800	45.7	0.98
069	$8.15	A	- 208,000	11.6	0.95
		B	+ 155,000	11.6	0.95
656	$3.70	A	+ 637,800	54.7	2.02
023	$1.95	A	+ 455,400	23.9	0.47

corresponding surcharges to particular, especially hazardous firms in these groups.

On their face these figures would seem to suggest an impressive potential for full-blown experience rating. What they imply is an annual injury cost differential of up to several million dollars between direct competitors in the same industry. Our analysis of the Board data indicates that this pattern in the experience of these firms has remained relatively stable over the last several years. The fact that one firm in the same industry, even in the same geographic area, has been able to out-perform another by so much shows that the injury level in auto manufacturing, nickel refining, or meat packing, for example, is amenable to more vigorous management efforts. And yet neither the regulatory nor participatory modes of government intervention under Bill 70 has been sufficient to close this gap. At the moment the costs of the excess injuries in the more dangerous plants are borne equally by the safer firms. It seems clear that if these multi-million dollar differences in compensation experience were to begin to show up in individual WCB assessment bills year after year, the management of the dangerous firms would have a real incentive to try to close the gap; the safer firms would be motivated to do even better to retain their competitive edge.

The sceptic might respond that while these figures look impressive in absolute terms, they are much smaller in relation to total cost of production. The largest dollar figures for rebates or surcharges tend to come in industries such as auto, steel or nickel mining, precisely for the reason that employment and compensation costs are so large here for all firms. By and large, the swing in WCB assessments under full experience rating would hover between 1% and 2% of assessable payroll of the firms (although it was over 3% in meat packing and fully 8% of payroll in the construction industry group noted above). The argument against experience rating, then, is that cost savings of this relative size simply do not represent the kind of payoff which would induce major changes in the way a firm conducts its operation.

There is validity to this observation. It reminds us that we must not be bewitched by the allure of experience rating, especially as a *sufficient* market-type response to the industrial injury problem. On the other hand the ratio of the rebate/surcharge gap to total payroll costs is not terribly useful either. The relevant factor is what it might cost to make the kinds of changes in firm operations which would close this gap, and how this figure compares with the savings in compensation premiums which might be produced. This is a question which can be answered only by looking at each industry and at each firm. The virtue of merit rating is that it prods the firm to ask this question; it gives the Safety Director in a corporation a more tangible talking point when he debates this issue with his operations or financial counterparts in the management group.

Still another comparison might be mentioned: incentives generated by WCB premiums compared with incentives supplied by OSHA fines. However small the compensation surcharge may look in comparison to a firm's payroll costs, it absolutely dwarfs the average $1000 or so fine now being meted out for violations of provincial workplace safety standards. And this premium rebate or surcharge is churned out automatically by the WCB computer, year after year, as long as the variation in firm performance continues; while the OSHA fine may well be discounted inside the firm by the chance of inspection, discovery, prosecution, and conviction.

H — The Impact of Experience Rating in the United States

It would seem plausible that the prospect of saving sizable sums in annual compensation assessments would serve as an effective inducement to individual firms to try to make their plants and operations safer. It would be nice if we had some direct empirical evidence to confirm or refute this hypothesis. In fact, there has long been an experience rating plan for workers' compensation insurance in the United States, developed under the auspices of the National Council of Compensation Insurers (NCCI).[33] Without dwelling on the details of the NCCI scheme here, suffice it to say that the largest American firms are fully experience-rated, the smallest firms are entirely manually-rated (i.e., according to industrial classification), and the premiums for intermediate-sized firms are calculated partly according to industrial class and partly according to firm experience. The proportion attributable to individual experience rises along with claims volume which makes this historical experience more credible. Some research has been done on the impact of this NCCI plan. As is true of nearly every aspect of industrial health and safety, this U.S. research provides just about all the empirical evidence we have on the subject of experience rating.*

There are just two direct studies of the impact of NCCI rating, neither of which has yet been published. The first[35] sampled a number of manufacturing firms in Wisconsin, Florida and Texas employing between 50 and 250 employees. The authors examined the effects of a 1974 change in the WC premium based on firm experience in 1973 and earlier, and found no statistically significant impact on later injury rates. The problem with this study is that the average increase in the 1974 premium as a result of experience rating was less than 0.25%. In absolute dollars, the actual change in *annual premiums* for the Wisconsin firms was + $4.00, for the Florida firms -$3.00, and for the Texas firms + $43.00 (the latter an almost indiscernible .006% of assessed payroll). This study tells us only that under a program such as NCCI's, if the experience rating modifier generates tiny changes in premiums for small firms of small size and/or low injury rates, unsurprisingly this provides no tangible incentive to institute safer work practices.

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*I should note that a British study[34] has examined the impact of the *penalty* rating system in Ontario. This long-standing program of the WCB is not a system of pure experience rating as such; since S.91(7) of the Act only gives the Board the discretion to impose a penalty assessment on a firm which has a consistently poor record. A number of firms with excessive compensation costs for three years previous were assessed a penalty by the WCB in 1968. Their subsequent experience was traced over the next four years. Each of the five firms judged "comparable" by Phillips, showed a sharp drop in both the frequency rate and total compensation cost in the later period. A good feature of this study is that it was longitudinal, comparing the experience of the same firm before and after infliction of the penalty. Its basic flaw is that it did not use a general model of accident determination which would have enabled it to control for other variables which themselves might have produced the observed decline in injury rates. This is especially a problem for small firms whose injury risk exhibits a high degree of randomness at any one time. There was no test of statistical significance applied to the numerical findings to show that they were not due to chance. In the absence of these refinements, this study provides at best suggestive rather than firm and reliable evidence of the efficacy of workers' compensation for injury prevention.

The second study[36] was quite different in design but subject to the same infirmity. This one compared 15 types of manufacturing firms in states subject to the NCCI program. While this research encompassed larger firms of up to 1,000 employees, the problem was that all these firms were covered by the same NCCI-ER modifier. To locate a difference in the degree of experience rating which would permit a test of the program's impact, the authors focused on the variation in interstate benefit levels which would show up in the premium adjustment according to the NCCI formula. But a look at the relative performance of the larger firms in the state with the higher benefits (where presumably the ultimate impact of merit rating would be at its greatest) revealed no systematically better safety performance. Unfortunately we are never given the actual premium dollar difference resulting from operating in a higher benefit state. Assuming that the actual range in benefit levels was fairly constant in the states studied, the potential interstate variation in refunds or surcharges would also have been small. One should not be surprised, then, that significant positive results did not show up in a complex analysis of interstate injury data. But a finding about firms in different states which are experience-rated in precisely the same way, has little relevance to the question of what difference it makes if a jurisdiction goes from little or no experience rating to a full-fledged program.

In sum, as critics of experience rating assert, we have no irrefutable scientific proof of its efficacy in specific case studies. This puts experience rating in the same company as most policy initiatives, including both "regulation" and "participation". Like any human institution, a government has to act on the basis of a common sense assessment of what seems most likely to be true. Certainly the assumptions of experience rating are not particularly esoteric or implausible; that employers in control of the workplace can do something about injuries among their employees; and that making the firm individually responsible for the cost of compensating these injuries will give it the motivation to do so. In any event, a number of broader, empirical analyses of trends in U.S. injury rates do provide powerful corroboration of these assumptions.

The first of these is a study[37] which looked at the changeover from the old common law regime of tort law requiring proof of employer fault to the newer system of workers' compensation which guaranteed recovery of a substantial share of the economic cost of workplace injuries. An analysis of machine-caused fatalities from 1900-1940 in the United States, focusing on trends in each state in the year just before and just after the introduction of workers' compensation in that state, showed that placing greater financial responsibility on employers was associated with a substantial decline in these kinds of workplace injuries.

The second study[38] contrasted injury rates in different sized firms in the same industry and with the same kind of work force. It found an inverse relationship between the per capita injury rate and the size of the firm (and thus the degree of experience rating).* Finally, another group of studies[39] has shown that as higher wage rates and/or higher benefit levels push up the absolute size of workers' compensation premiums, thus enhancing the potential impact of experience rating, the injury rates in these firms and jurisdictions decline correspondingly.

No doubt each of these studies can be critically dissected and some doubt cast on the quality of the data, the ability to control for other variables, and so on. No single finding would be taken alone as sufficient confirmation of the effectiveness of merit rating. But when one looks at these studies cumulatively, and when one recalls that we are starting from an intuitively plausible assumption in any event, this evidence provides more than enough support for the policy judgment that we should experience rate the system of workers' compensation in Ontario in order to take advantage of this market incentive to make the workplace safer.

I — The Limits of Experience Rating

Having said that, my close reading of all this empirical research and scholarly analysis also teaches me that we should not have inflated expectations about the promise of this instrument. If experience rating were to generate only minimal changes in annual compensation premiums — on the order of one, two or three hundred dollars — it would make little difference in a firm's behaviour; especially given that the employer already suffers some direct economic cost when an accident occurs in its operation. Inevitably, for many employers such minor variations in workers' compensation premiums are the most that we can expect from experience rating. For these firms, we will have to rely on regulation and/or participation as the spur to greater safety efforts.

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*There is one exception to this rule. The tiniest firm, 1 to 19 employees or less, had a smaller injury rate, this level rose sharply to the firm with 50 to 99 employees, and then declined continuously with increasing size beyond that point. Presumably there are special features of being very small which are conducive to greater safety: perhaps just the fact that the owner is on the job as well, exposed to the same workplace hazards. Intriguingly, our analysis of Ontario WCB data showed that the smallest firms here have the lowest injury rates; but that the larger firms, who are not experience-rated to any significant degree in this province, do not have the better records which one would expect from the American pattern.

Ultimately the potential of experience rating is inherently limited because the outer boundaries of its incentive effect are set by the amount of compensation which has to be paid to injured employees. This is a function of the size of the employer's payroll, the number of injuries produced in its operation, and the level of statutory benefits. The last is defined by the legislation and is the same for all employers in the jurisdiction. The first two vary with the nature and scope of any firm's operation. In appraising the value of experience rating, one must recognize that this instrument is likely to have a material impact only to the extent that it is used for the larger firms in relatively dangerous industries; i.e., in situations where workers' compensation assessments may amount to a considerable percentage of labour costs. If there are significant and persistent differences in firm injury rates, experience rating will produce sizable variations in the costs of production of employers which are in direct competition with one another. We saw earlier that there are industries in Ontario in which application right now of a full-blown system would generate premium differentials amounting to millions of dollars annually. One has to assume that in a free enterprise economy this would be a useful motivation to enlist in the cause of a safer workplace. The flip side of this reasoning is that for a comparatively small firm in a safer industry, merit rating is essentially irrelevant to accident prevention efforts.

Focusing our experience rating program on the larger firms in the more dangerous industries is warranted not simply for these practical reasons, but also in light of the principles of *insurance*. Indeed, the fundamental reason why WCB's in Canada have historically been reluctant to use experience rating in a serious way is that they have seen such a program as incompatible with their obligation to offer the kind of insurance which is needed by the vast majority of employers covered by the statute.

To understand both the force and limitations of this concern, we must consider the precise nature of a workplace accident. I referred earlier to the position of economists that these accidents are a form of production cost, which should be incorporated into the price of the product in order to allow consumers to decide whether to use a substitute which is cheaper in a social sense, because it is safer to produce. This line of argument is reminiscent of the economist's objection to artificial restraints on the price of energy: they dilute the incentive of firm and consumer to conserve on energy use. But there is a fundamental distinction between the two cases. Each accidental injury to an employee is a random event. People choose to consume energy, but no one deliberately chooses to incur the cost of a single accident. True, statistical analysis shows the tremendous difference between the injury rates in coal mining and banking, for example, a differential which has obtained in many countries and at many times. To the extent that a society is oriented in its industrial production and employment towards coal mining, one can reasonably say that it has decided to incur a certain level of workplace injuries; which the industry should compensate for and then incorporate in its structure of costs and prices. The actual experience of a particular firm may vary sharply from the comparatively stable industrial distribution of workplace injuries. Yet one is not necessarily entitled to judge from the previous experience of this firm what is the relative hazardousness of its operations and what incidence one should expect in the future.

This hypothetical case illustrates what I mean. A small firm, employing about ten employees, has not had a lost time accident for the last three years. This year, though, it has experienced a single major accident which killed a young skilled tradesman who had been earning $25,000 a year and who is survived by a wife and four children. Especially under the White Paper proposals, survivorship benefits in a case such as this will represent a potential liability of $500,000. This huge, unanticipated loss is precisely what the insurance function of workers' compensation is designed for. Just as is true of other risks (of fire, theft, motor vehicle accidents, *et al*), it is sensible public policy to have all firms such as this contribute a fixed, modest but regular premium — perhaps $1000 a year — into the collective pool of funds collected by the WCB, which can then be drawn on to provide compensation in this very serious but comparatively rare event.*

At the same time, permitting workers' compensation to play its insurance function in a case such as this — distributing the random cost of industrial accidents from the individual firm to the industrial group — sacrifices nothing of real value in the preventive function of experience rating — trying to give management an incentive to improve its safety performance by making the firm pay its own compensation costs. This $500,000 injury tells us nothing about the relative safety efforts of an employer this size. In manufacturing, the average injury rate for firms with ten employees is about 1/2 lost-time injury per year. This means that every firm must be at least 50% above or below the average (having either at least one or no accidents within a year); a firm with only two accidents is four times the average. But statisticians tell us that a purely random distribution of accidents in any one year has a dispersion pattern in which a few unlucky firms have a record even higher than that. The element of chance is even stronger with respect to the severity of an accident, an element which has more influence on compensation costs than does frequency. In Ontario there are only 300 compensated fatalities and 50 permanent disabilities a year, out of about 160,000 lost time injuries annually. But when such a major injury does occur, it must take place within a particular plant. If it happens to strike a small firm such as the one in our example, with no prior history of an above average lost-time injury rate, this single event provides no credible indication of whether the firm's work practices are comparatively unsafe. The unfortunate incident may have been due to a momentary lapse of attention on someone's part which no employer could have guarded against entirely. Of course, under workers' compensation the survivors of the dead worker should and will receive redress irrespective of the absence of fault on the part of the employer. But it would be unreasonable and unfair to subject this firm to individual liability for any significant part of the cost of the accident, in rigorous application of the theory that experience rating provides a financial spur to a safer workplace.

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*Such insurance is in the interest not only of the firm's shareholders but also its active employees who would lose their jobs if such a liability were to put the firm out of business. Indeed, some such scheme of collective responsibility is necessary to guarantee payment of their benefits to disabled workers themselves, rather than have a major accident put the firm into bankruptcy.

The same judgment is not true at the opposite end of the spectrum. Take a firm in the mining or forest industry which has a work force of thousands of employees, which regularly experiences hundreds of lost time accidents per year, and which pays annual workers' compensation premiums of several million dollars. These premiums are now calculated on an industrial basis in proportion to the size of payroll, without regard to the relative injury rates of different firms. But for years the firm's compensation costs have been markedly higher than that of other firms in the same industry. This previous experience does give reliable evidence of a lack of sufficient commitment by management to a safer workplace for its employees. The cost of this attitude should be borne by the firm itself rather than subsidized by its competitors in the rating group. Any one of the accidents may have been unavoidable; but the pattern of excess injuries measured against its counterparts in the same industry and province tells us that there is something wrong in this operation, and that some motivation is needed for improvement. Nor would a levy by the WCB of a surcharge on this firm (together with payment of the appropriate refunds to the other firms with better-than-average experience) be inconsistent with the insurance function of workers' compensation. A firm of this size is perfectly capable of acting as, in effect, a self-insurer against all but the most catastrophic of workplace incidents.*

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*I speak of self insurance only from the point of view of the employer ultimately bearing the cost of compensating its workers for their injuries. I assume that the

Each of these cases depicts important segments of the jurisdiction of the WCB. The challenge, then, is to design a rating scheme which will train a meaningful financial incentive on the larger firm where this is justified by credible experience, while providing collective insurance which cushions the smaller firm against potentially crushing liability. How does one do this?

One way would be to adopt a single plan across the board for all firms, large and small, with an experience rating formula which imposes severe limits on the degree of merit rating in order to insulate smaller firms against their individual liability. To the extent that Canadian WCB's have dabbled with experience rating, this is the tack they have chosen. For example, Ontario now has an experience rating plan which can be voluntarily adopted for a particular rate group through a majority vote of the employers involved. This plan now applies to 41 of the 108 rating groups, but to only 12,000 of the nearly 150,000 employers covered by the statute. The Board now proposes that experience rating be made mandatory for all rating groups and all employers. Its plan has three crucial features which severely limit its impact:

(i) Only 60% of the actual WCB costs are to be counted for purposes of the program, the so-called direct cost of reimbursing individual workers for injuries identified with a particular firm. Excluded are all costs of administration, safety associations, rehabilitation, second injury funds, and other similar ingredients of the overall WCB operation.

(ii) To the extent that an individual firm's experience varies from that of the group, only 50% of the difference will be either surcharged or rebated to this firm. This means that an especially good or bad performance can make no more than a 30% difference in the ultimate premium (i.e., 50% of 60%).

(iii) And the ratio of individual experience to the group average is to be calculated on a 3-year basis in order to provide a more stable and credible base for adjustments in the premium. But this dilutes even further the responsiveness of the WCB assessment to the employer's most recent experience. No matter how good or how bad a firm's safety efforts are in any one year, the maximum change this can produce in the next year's premium is 10% (30% divided by 3).

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injured workers themselves would still have their claims adjudicated by, and benefits and services provided through, the WCB itself (as is true now of Schedule II firms).

While the Board has a legitimate objective in mind in framing these qualifications to experience rating, I do not believe that this is the soundest manner in which to proceed. It deprives us of much of the value of full-blown merit rating where this instrument would be appropriate, while not giving near enough protection to small firms who will still be unfairly penalized.

Such an across-the-board limitation on the experience rating formula drastically limits the power of this incentive for the larger firms in the more dangerous industries. In the auto industry, for example, the current Board plan generates an annual refund of less than $200,000 for one manufacturer and a surcharge of less than $300,000 for another. As we saw earlier, full experience rating would produce a refund of $1.6 million for the former company and a surcharge of $2.6 million for the latter — eight times the financial impact of the Board's scheme. There is absolutely no *insurance* reason for cushioning manufacturers of this size against the compensation consequences of their operations.

Even accepting this dilution of the incentive focused on the big companies, it still does not give adequate protection to the small firm. To return to my earlier example of the small employer which has experienced a single fatal accident which will cost the WCB $500,000, such a firm would face a surcharge for years and years under the WCB proposal. Although only a maximum of 30% of the excess compensation costs would be counted for purposes of a surcharge in any one year, this is small consolation to a business which would have to pay that surcharge for decades. It may seem especially unfair if a competing firm which may experience a half dozen lost time injuries a year, but each of short duration, actually gets a rebate, even though this accident record shows that considerable safety improvement is called for. This kind of disparity in results has led a number of safety associations, led by the Construction Safety Association of Ontario, to propose a "frequency modifier" to the Board's formula. However laudable the impulse, the idea falls into the same trap. It seeks to undo the unfair effects of a single formula on the small firm for whom experience rating is not actuarially valid in any event, while adding another qualifier which further dilutes the impact of such a program on the large firm where it might have a real payoff.

I propose a different approach. A program of experience rating should be designed specifically for those firms whose compensation costs are large enough that they can provide a significant financial motive. It should exclude from its basic design, firms which are too small to provide statistically credible experience. The cut-off points of the program should be based on a certain level of annual claims volume, which itself would take account of the actual size of the firm's payroll, the total number of injuries, and their severity.* Firms above the cut-off point would be fully experience-rated to determine their premiums. And this formula would be applied to 100% of the compensation costs: not just the identifiable payments to its employees, but also the employer's share of running the overall program.

Three features should be added to the plan in order to enhance its power and to reduce any randomness which remains. First, the Board should capitalize the predicted cost of fatalities or long-term disabilities (when the latter stabilize), and this entire sum should be charged to the account of the individual firm at once — rather than annually charging the precise payments actually made that year, perhaps decades after the original accident occurred. This would maximize the financial incentive to change the employer's behaviour at the very time such an effort is necessary. Next, for truly serious disabilities, I would have the Board calculate an average for all such cases adjudicated in that year, and charge only this average capital cost to each firm affected. Thus, for purposes of calculating its assessments, the Board would treat identically one employer whose fatal accident would cost $500,000 because the deceased was a young worker leaving several dependents, and another firm whose fatal accident would cost the Board only $1000 in funeral expenses, because the victim left no dependents at all. Finally, I would have the Board provide catastrophe insurance for very large liabilities: those arising, perhaps, from a multi-employee, fatal accident whose cost might run into tens of millions of dollars and bankrupt even a very large company. With these three refinements, I believe that the Board could extend a full experience rating plan quite a way down the spectrum of employer size.

What about the firm whose regular workers' compensation revenues are not high enough actuarially to support full experience rating? It would seem rather arbitrary to assess the premiums for a firm just above this level on an entirely individual basis, but to assess the premiums for a firm just below it on a purely group basis. The solution is to gradually reduce the scope of full-blown experience rating as the firm drops below these cut-off points. These adjustments would be along two dimensions. The first would introduce the notion of the two-year or three-year average of firm experience. If the annual claims volume of an employer is not large enough to qualify for a statistically sound plan, calculating the average over two years is, in effect, doubling the size and credibility of the firm's volume, taking it over three years is tripling it, and so on. The second adjustment would involve a combination of group and individual rating for medium-sized firms; perhaps two-thirds individual and one-third group between certain claims volume levels, and half and half for the next level down. This would take us to a point where the complexities of experience rating are simply not worth the diminishing returns. But our analysis of injury data and firm size from the Board satisfies me that an actuarially sound plan of full experience rating of firms up to a maximum three-year average would cover employers which currently generate half the compensation costs in the province. In my judgment the adoption of a truly serious merit rating plan of these employers should make a major contribution to occupational safety in Ontario.

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*Thus a mining company would satisfy the claims volume level at a much lower level of employment than a department store, for example, simply because the nature and severity of its injuries are so much greater, and provide much more credible evidence of the comparative safety of individual operations.

What about the smaller firms, which represent the vast majority of employers (although not of the work force) in the province? Their assessment premiums should be calculated primarily on a group basis. In this case individual experience rating is a statistically spurious undertaking. But that does not mean that workers' compensation insurance need insulate these employers entirely from the consequences of injuries in their operations. The Board could charge back to the firm an initial dollar portion of the compensation which it pays for each claim involving that firm's employees: perhaps $500 a claim with a $2,000 a year limit. These "deductibles" are commonplace in private motor vehicle, fire, or theft insurance. There is no reason why they should be unacceptable in public workers' compensation insurance.[39] Their virtue is that they would generate safety consciousness on the part of even the smallest firms, by focusing on the frequency rather than the severity of workplace injuries, the feature most within the employer's control. And, of course, the Board would then adjust downwards the group rate charged these smaller firms to take account of the fact that the "deductible" portion of all of its claims was now being recovered directly from the firms involved.

There is a final distributional issue to be faced in such a program. The larger firms, who are fully experience-rated, would pay only their proportionate share of the WCB's total costs (including the overhead cost not directly traceable to any single firm). It is commonly assumed that as a rule larger firms are comparatively safer. This might mean that smaller firms as a group would have to bear a larger share of workers' compensation costs than they had been accustomed to (although the especially safe small employer might find its overall costs dropping if it did not have to pay any deductibles). Is it not unfair, it will be asked, to shift to small business a higher share of compensation costs which it can ill afford to bear?

There are two responses to this objection. The first addresses it at the level of principle. Assuming it to be true that small business as a class generates a disproportionate share of workplace injuries, why should big business be asked to tacitly subsidize *this* additional hazard of being small? Even if one is prepared to find some equity in this practice as between firms, it seems dubious to have this stand in the way of a reform which would motivate big business to improve the safety of its operation — thus providing equity to its employees who would otherwise be injured on the job. And if there is any validity to the use of this market instrument for injury prevention, safety innovation by the larger firms should eventually trickle down to the smaller firms and help reduce the overall injury toll (and thus the group premium charged to everyone).

In any event, those who are unpersuaded by these arguments of principle may be consoled by the facts of the matter. We did an analysis of WCB data from 1978 to 1980, comparing the actual experience of firms of different size against the risks which would be expected in their operation. This Table sets out the results.

Table 2

All Schedule I Firms: 1978-80

Firm Size (Expected LTI's)	Actual/Expected Frequency Rates	Actual/Expected Cost Rates
0 - 1	92.6%	103.7%
1 - 2	107.3%	100.1%
2 - 3	109.2%	96.2%
3 - 20	105.8%	98.0%
20 - 50	97.6%	101.2%
50 +	96.2%	100.0%

It is apparent that, in Ontario at least, smaller is not necessarily more dangerous. As regards frequency, the smallest firms are in fact the safest (and this would be reflected in their saving on the deductible side of the program). While the largest firms are also safer than average along this dimension, they are only slightly so. In any event, in an experience rating plan the more important dimension is compensation cost; interestingly, the distribution curve here is exactly the inverse of what it was for frequency. I would expect that full-blown experience rating would be concentrated almost entirely in the 20-50 and 50+ Expected LTI category. While there is a remarkably even distribution of compensation cost by size of firms, this group does produce a slightly above average share of the costs. Introducing serious experience rating to require these larger firms to pay for their own costs will not involve any shift of the overall burden from big business to small business.

J — The Cost of Experience Rating

Up to now we have considered the positive case for experience rating of workers' compensation premiums. In appraising such a proposal, we must also be aware of its potential costs. Not the administrative burden, since the marginal cost of adding this feature to a computerized assessment/collection system is likely to be minor — but rather the concern expressed by many that such an emphasis on *prevention* in the financing side of workers' compensation may well hamper the *compensatory* function of this program. The expectation of its proponents is that employers would respond to experience rating by instituting safer work practices, which would reduce the frequency and severity of the injuries suffered by their employees. The opponents of experience rating feel that the actual reaction of many employers would be to try to reduce the likelihood and amount of benefits being awarded to employees who are still being injured.

This perverse reaction might take two forms. In one the employer would induce its employees to remain on the payroll — as so-called "walking wounded" — rather than leave the job, apply for benefits, and thus show up on the employer's assessment bill. The vices in this practice are that the WCB might not open an initial file for a minor injury which might recur later on, or that the employee might aggravate the original injury by staying at work. A second concern is that if and when an injured employee does file for compensation, the employer will be more likely to oppose the claim and to appeal any award. The unfortunate result is that many more claims would be delayed while the injured worker goes without income, and some meritorious claims may be denied altogether.

There is some force to this concern. One reason we cannot guarantee that this illegitimate reaction to experience rating will never occur is that it actually consists of an excessive degree of employer behaviour which can be legitimate if done to the proper extent. Some might argue that this could never be true of an employer fighting a workers' compensation claim. They might prefer that the employer *never* take an adverse position against one of its employee's claims. I disagree. As long as we do not have a comprehensive disability scheme, the condition for entitlement to workers' compensation benefits is that an employee actually be injured at work. If this legal condition is not satisfied the benefits should not be paid. Often the employer is in the best position to know the facts of the matter. If it has information which shows that a claim by one of its employees is invalid, this should be given to the WCB, the body responsible for devoting to its proper purposes a public fund which ultimately comes largely from the pockets of the active workers in the province. Accordingly, experience rating gives the employer a self interest in helping the WCB police the occasional abuse of the program. Unfortunately, it also creates the danger that certain employers will go too far in this respect; that they will regularly fight legitimate claims by their employees.

Still, one must have some perspective on this concern. The administrative structure of Canadian workers' compensation — through an investigative rather than an adjudicative process — is not conducive to wholesale employer abuse of this type. Experience rating under the form I propose will apply to the larger firms in more dangerous industries which produce a significant number of compensation claims. The officials of the WCB will soon become aware of which employers are providing helpful information and which are fighting a constant rear-guard action against any claims. Benefits are payable as soon as an initial favourable disposition is made by a Board adjudicator, irrespective of whether the employer chooses to appeal. A few Schedule II firms — particularly the railroads — are now, in effect, self-insurers under the Act. I found no evidence at all that these firms actively contest any more of their employee claims than do Schedule I employers who are now governed by the collective insurance regime.

The other potentially perverse reaction to experience rating is that an employer will induce the injured employee to stay on the payroll at work rather than stay at home on workers' compensation benefits. I confess that I find this common refrain hard to fathom. What financial incentive does an employer have to keep an employee sitting around on full wages and benefits, doing little or nothing perhaps even disrupting morale and discipline among the other employees rather than have the injured worker compensated by the WCB (even though this will show up later on the employer's assessment)? During my Inquiry, union officials told me that this had happened in the past in their industries. If it did, it occurred under a workers' compensation regime which did *not* have any significant degree of experience rating. It may be that internal management incentives lead superintendents occasionally to keep employees with minor injuries sitting around for several days while they recover, in order to maintain the "injury-free" record of their divisions. There is no reason to suppose the introduction of experience rating would materially add to this kind of internal management motivation. Where the practice does occur, it is contrary to the statute, and the Board can and does penalize it.*

At the same time, one must recall that experience rating helps produce greater employer enthusiasm for *rehabilitation* of its disabled employees. In other words, this program helps reduce the overall injury burden on Ontario workers by encouraging not only steps to prevent injuries from occurring in the first place, but also measures which reduce the length of time such injuries keep people off work. This is particularly important with permanent partial disability cases. If a partially disabled person has to return to work under some limitations, or even to be retrained for a new job, it is normally in his interest that this take place with his old employer. He will be in a familiar environment in which he retains his seniority, long-service fringe benefits, supervision, and friends. Unhappily, some Ontario employers continue to want to use only entirely able-bodied employees in their operations, often because of a stereotyped view of the actual capacities of the disabled. One cost of this attitude is unduly prolonged compensation benefits for the seriously injured employees who are not able to find work with other firms to which they are strangers. Under the current system for financing workers' compensation, these added benefit costs are borne equally by the other employers in the rating group. One major virtue of experience rating is that any firm which chooses to shirk its rehabilitative responsibility to the employees injured in its own operations is forced to pay a significant price for the privilege.

Any new government policy adopted in pursuit of certain objectives has some unhappy side effects. There is no guarantee that experience rating would prove to be an entirely unmixed blessing for workers' compensation. It is logical to suppose that experience rating could generate undue emphasis by some employers on containing their compensation costs rather than their accident levels. It is also true that reduction of compensation costs is itself a desirable objective if done in the right way. In my judgment it is likely that even along this single dimension, the benefits of experience rating — particularly through encouragement of greater rehabilitative efforts

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*The Board learns of these cases when the employee's doctor bills the WCB for what he knows to be a workplace injury, and for which the treatment fees are now about 20% higher than they are under OHIP. The Board will check to see whether the employer has filed the requisite Form 7 in connection with this workplace injury. If it has not been filed, then the firm is penalized. If the introduction of experience rating were to lead to some increase in the "walking wounded" phenomenon, the Board should increase the level of these penalties.

— would likely outweigh any undesirable effects (and the Board should be armed with ample statutory weapons to deal with abuses as and when they do occur). I am satisfied that when one totes up all the entries on the balance sheet — the potential effects on accident rates as well as the impact on the compensation side — the ultimate verdict is strongly in favour of experience rating of employer assessments under workers' compensation. This is the key contribution the compensation program can make to prevention.*

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*There are further potential contributions which I have not dealt with in this Chapter. One is the development of better data about the distribution and causation of workplace accidents. I shall have some recommendations to make about this at the end of this Report. Another is the financing and orientation of industry Safety Associations, an important feature of the Ontario regime. I shall be reporting to the Minister of Labour on this subject sometime this summer, following further study.

5

Integrating Compensation and Prevention

A — The Limits of Experience Rating: Industrial Disease

The analysis in the previous Chapter persuades me that workers' compensation can and should be harnessed for the purpose of preventing occupational injuries through a system of experience rating. I emphasize again that this technique should be viewed as complementary to the instruments provided for under the OHS statute: regulation through legal standards and participation through joint committees. The premise of experience rating is that we should turn to advantage the fact that most occupational injuries take place in an environment effectively controlled by business enterprises which are motivated by the prospect of financial gain. To the extent that an individual firm is allowed to enjoy the benefits or bear the costs of its safety record, this can foster a market for new ideas, practices and technology in injury prevention. The special value in this instrument is that it gives the firm the internal incentive to go beyond the current state of the art in industrial safety, a factor which effectively limits the scope of external government mandate. To the extent that experience rating of compensation assessments is believed to make a worthwhile contribution to the goal of prevention, a substantial reason exists for maintaining a distinct program for compensating *workplace* diseases, rather than submerging the latter in a broad, undifferentiated program of social insurance.

At the same time we must recognize the inherent limits to experience rating itself. Its maximum potential is set by the total amount of money needed for compensation which, in many industries, is not that high. Even in the more dangerous industries, where reduction of compensation costs might seem to provide a worthwhile payoff, the need for collective insurance of the smaller employer makes this instrument unsuitable for such firms; and they generate as many as 50% of occupational injuries overall. There will always be ample need and scope for regulation and/or participation as tools for achieving a safer workplace.

An equally important limitation on the reach of experience rating relates to disease, particularly the long-latency diseases epitomized by cancer with which I began this Report. The very characteristics of industrial disease which have given the WCB so much trouble in resolving claims for compensation make experience rating equally unsuited for its prevention.

One problem is appreciation of the connection between the disease and the workplace. Take the unusual case of a cancer victim who comes forward with a compensation claim based on workplace exposure some twenty years earlier. The toxicity of the substance in question was not demonstrated in epidemiological studies until five years ago. Under a no-fault workers' compensation system, such a claimant is rightfully entitled to benefits now that the workplace connection has been identified. But on its face it would seem both pointless and unfair to charge the cost of this disease claim to the individual firm in order to motivate it to eliminate the health hazard, when the critical exposure took place long before anyone realized that there was a hazard and that something should be done about it. On reasoning such as this, the Canadian Manufacturers Association and other employer groups urged that an experience rating program should exclude the cost of all disease claims in which the relevant exposure took place before the toxicity of the industrial process had been officially recognized (whether in workers' compensation or occupational health standards).

On reflection, though, the difficulty goes much further than that, stemming from the long-latency feature of many industrial diseases. The assumption of experience rating is that an employer who must bear the cost of injuries in its plant will undertake the expenditures necessary to prevent these injuries, because a reduction in injuries will show up in a reduction in its assessments. This assumption is plausible in the case of accidents. Installation of hand-guards and fail-safe switches on an employer's machines should have an immediate impact on the number of injuries to its employees, and thence on its compensation assessment. But suppose that the employer is to be charged with the cost of future disease claims which stem from exposure to what the WCB (or the Ministry) has officially decided is an industrial carcinogen in his plant. On the surface, the desire to avoid the substantial cost of these cancer claims would seem to provide ample financial incentive to the firm to make the expenditures necessary to clean up its operation. The problem is that the effect of eliminating workplace exposures will not show up in a reduced incidence of cancer for 20 years or more (depending on the normal latency period of this cancer).* From the firm's point of view, then, while the major investment must be made now, the return on the investment – the containment of compensation costs – will not begin for two decades or more. The market requires that such long-range returns be discounted by an appropriate annual interest rate for each of these years. Unless there is a truly enormous health risk and potentially huge compensation costs, it will rarely be to the private financial advantage of the firm (or its executives) to make the major engineering/hygienic changes in its operations which are usually necessary for prevention of disease.

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*The claims which come forward in the next two decades will be due to worker exposure before the discovery of the carcinogenic character of the process, and thus before the firm could be expected to do something about it.

Appreciation of these facts leads even those economists who are most enamoured of the market for workplace safety to conclude that we must place primary reliance on government regulation to improve occupational health.[1] For my purposes, what this implies is that the prevention objective is *not* a good reason for retaining a distinct program for the compensation of workplace diseases (by contrast with accidents). We already saw in Chapter 2 the extreme difficulty for the administration of such a program of accurately identifying those diseases produced by workplace exposure; and, in Chapter 3, that from the point of view of compensation it is pointless even to try, since the income needs of the cancer victim are precisely the same whether the disease arose from workplace exposure or from exposure in the general environment. Putting these several propositions together, the conclusion emerges that we should have a general scheme for compensating the victims of all disabling diseases, even if we want to retain categorical programs for distinct types of accidents (e.g., those occuring on the job or on the highway).*

B — A Different Market Incentive to Reduce Industrial Disease

Stating this conclusion in such an unvarnished fashion will trouble many readers. It may be true that the costs of diseases produced by dirty and unhealthy industrial environments will not manifest themselves until so long in the future that they cannot figure in the short-run investment decisions of the private firm. But these are real and serious costs — of asbestos, for example — for which a particular industry or company was in fact responsible. Is there not something wrong about giving the industry or firm a free ride under a social insurance scheme in which the community bears the cost of all these disabling diseases?

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*Intriguingly, the argument so far supports the opposite position to that now embodied in the New Zealand Plan, which provides comprehensive insurance for all victims of accidents, whatever the source, but excludes disease from this general coverage (although industrial diseases continue to be compensated to the extent that they can be identified).

One response to this concern is that we can rely on regulatory standards for effective prevention; however this will not entirely comfort those who are familiar with the inherent limits of regulation. There is an inevitable time lag in the development of such standards. The health danger must be documented, the technological means of control developed, and all this written into legal language following a lengthy administrative procedure. While the Ontario government is methodically moving to deal with the long-established hazards such as asbestos and lead, new and exotic compounds are regularly being introduced. Even for those obvious hazards for which a standard is being prepared, there are often technical and economic constraints on the feasibility of entirely eliminating the hazard (assuming that one is not prepared to close down the entire steel or nickel industry, for example, to save the workers in it).

The inherent tendency of bureaucratic regulation is to fix a performance standard which appears to be reasonably manageable across the industry as a whole, given the current state of available technology. This kind of government intervention often reduces the hazard but rarely eliminates it. Especially for diseases such as cancer for which there appears to be no minimum threshold of danger, the exposure levels which remain, imply a predictable level of industrial cancer in the future (though this may be a tiny risk for any individual worker). Another problem with placing exclusive reliance on external general standards is that once any particular firm has satisfied the legal minimum, it has no tangible incentive to do better, even though it might be able to do so with a reasonable additional investment on its part.

There is an alternative to experience rating which would provide much the same financial spur in the case of disease. This would be to charge the individual firm an *emissions fee*[2] for any hazardous exposure of the employees in its plant, even if the current state of technology or the economics of the market do not make an outright legal bar feasible. Such a charge could be fixed within the standard-setting procedure itself. The regulation might mandate elimination of exposure above a certain intensity and duration — the point to which the government is prepared to push industry at this time. To the extent that companies were given a certain grace period in which to reduce exposure to this level, or to the extent that an irreducible degree of exposure remained for the foreseeable future, the firms in the industry would be charged a fee for these toxic emissions. The fee would be based on a rough estimate of the incidence of disease which could be reasonably expected from exposure below the mandatory ceiling. The fee paid by a firm would vary with its actual level of emissions and the number of employees affected. Finally — and very important — the money collected from these charges would go into the fund for compensating the victims of disease.

Clearly, the purpose of the emissions/exposure charge is the same as that of experience rating compensation costs: to exert continued economic pressure on firms to do even better on their own than is mandated under the legal minimum established by an outside government agency. Even the company with a modern and comparatively clean operation would find it financially worthwhile to spend the money on new engineering controls or work practices which would make its plant environment healthier. One could anticipate the same dynamic relationship between legal standards and market incentives to which I referred earlier. When a firm is induced to devise a new way of reducing a health hazard which proves effective and economically feasible, it gives the government administrator a tangible basis for moving the legal target downwards and requiring the same level of performance from others.

A standard objection to emissions charges as a technique for controlling hazardous exposures is that it is difficult both to calculate the appropriate level of the fee and to measure the actual degree of exposure in the plant. Admittedly, an emissions tax is second-best compared to a sophisticated program of experience rating, under which the costs of specific injuries in a particular operation are calculated and charged to the firm itself. But the real question is whether a rough approximation through emissions fees is better than no charge at all. Undoubtedly it is. The virtue of this device is that it would overcome both problems of experience rating the compensation costs of disease which I noted earlier. First, there is no need to make the logical leap of using general statistical evidence to connect an individual disease victim with a particular workplace. The exposure fees would be set on the basis of general epidemiological studies. Second, there is no problem with discounting the ultimate compensation savings from long-latency diseases. The firm would get the benefit of an immediate reduction in the fee it is charged as soon as it shows that the *risk* is reduced in its plant.

Another objection to an emissions fee is that it amounts to just another provincial government tax added to the cost burden of Ontario businesses, putting them at a disadvantage vis-à-vis their out-of-province competitors whose governments do not use this device. This objection is unwarranted if the revenues from the emissions tax go into the employer-paid portion of the compensation fund rather than into general government revenues. Just as is true of experience rating of accident compensation costs, the imposition of such a fee for creating the risk of disease simply redistributes the cost of compensating these disabilities within the group of Ontario employers: it does not *add* to the employer share of the costs. To the extent that a particular firm or industry is required to pay a greater share of the overall compensation cost because of its higher-than-average level of toxic exposures, this correspondingly reduces the compensation assessments on those firms which are cleaner than average. It would seem to be sensible government policy to enhance the competitiveness of those Ontario firms which are prepared to make the effort and to spend the money to make their plants safer and healthier for Ontario citizens to work in.

C — Accommodating Compensation and Prevention

If we decide to embark on this policy path, there is no logical reason to limit its reach to *workplace* conditions which cause diseases to employees. Indeed, many diseases which are partly occupational in origin are also significantly contributed to by outside factors. For example, an insulation worker who develops mesothelioma when exposed to asbestos while working for a contractor, rightly believes that the manufacturer of the asbestos had something to do with his disease. By the same token, if a steelworker who was regularly exposed to coke oven emissions develops lung cancer, it is reasonable to suspect that a long-time smoking habit may have had something to do with either the initiation or the promotion of this disease. It does not make sense to treat what happens inside the workplace as isolated from and untouched by what happens outside. If it is sound policy to provide economic incentives to the employer to reduce the potential hazard of its operations, we should do the same to the firm which introduces comparable hazards into the general environment and culture.

This is an attainable goal within the framework of a general disability plan which extends to *all* diseases, not only to those specifically connected with the job. Just as economic charges can be levied on steel mills which create risks of cancer or other diseases, so also can they be levied on the manufacturers of automobiles or cigarettes, for example, in proportion to their health risks (which will vary depending on the type of fuel system and pollution control devices on the cars, or the tar content and degree of filtration of the cigarettes). Money from these charges would help replenish the general compensation fund used to redress the needs of disease victims. The fact that special levies had to be paid would mean that the people who sell or use these especially dangerous products would have to bear the additional health care and income maintenance costs which they create for the community. In turn, this would set in motion an effort to reduce the hazard level either by revising the nature of the product or substituting safer alternatives which satisfy much the same purpose.

Do accidents have to remain outside a single general plan? As the previous Chapter showed, from the point of view of prevention there is a major virtue in a distinct, categorical program for different types of accidents, such as those produced by the workplace or automobiles. Rather than rely on rough estimates of the overall disability costs for purposes of calculating an appropriate "risk" tax (for emissions exposure), we can determine the source and the costs in each accident case; and at the end of the year send each firm a bill for the cumulative accident toll for which it is responsible.

Even in the realm of accidents we run into the perennial problem of overlapping activities and programs. When a delivery truck driver is injured in a collision with a private automobile as the result of a brake failure in either vehicle, there is no easy way to decide whether to charge this injury to workers' compensation paid for by employers, or automobile insurance paid for by motor vehicle owners, or products liability insurance paid for by manufacturers.*

It is on the compensation side, though, that one finds the major flaws in the use of categorical programs for accidents. We saw in Chapter 3 that these tend to be available only for the more obvious recurring accidents, especially if someone else was involved — e.g., highway traffic or workplace accidents — leaving major gaps in coverage of people injured at home, for instance. Even where a viable program exists, substantial differences exist in the level of benefits, unrelated to the relative needs of victims to whom the benefits are being paid. In the case of tort liability/insurance, at least, extremely high costs of administration eat up money which could otherwise be spent to broaden and raise the benefits actually reaching the victim. All in all, from the point of view of compensation, the virtues of a single, comprehensive disability plan are undeniable.

The broader lesson from the discussion of emissions charges for disease risks is that we are not locked into a choice between more adequate compensation and more adequate prevention. The solution to the apparent dilemma lies in the fact that there are two sides to any disability plan — payment of benefits and financing of the fund — but that only the second need be specially tailored for prevention. Decisions about whether and how the victim of an injury is to be compensated should be based solely on his needs and the size of benefit which the community feels is affordable. It is in the *funding* of the program that we should tailor the system of assessments and levies in a way which elicits the desired level of injury prevention from the act or enterprise responsible.[4]* I do not mean to imply that there will be easy, automatic answers to this inquiry. We could expect heated scientific and political debate about issues such as whether and to what extent cigarette smoking or coke oven emissions contribute to the risk of lung cancer among steel workers. Perhaps the best feature of this new legislative setting is that however that debate turns out, the diseased worker or his surviving dependents will be guaranteed the income they need. All that will turn on the issue of causal responsibility is whether steel companies or cigarette companies will pay more or less money into the fund which compensates for these diseases. Certainly this kind of program will provide an incentive for both industries to establish the true facts about the other, and then, hopefully, for each to do something about its own.

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*There has been an explosion of litigation over such cases in the United States, especially by injured workers suing the manufacturers of products bought and used by their employers. One author[3] estimated five years ago that while American employees collected overall about $5 billion in benefits from workers' compensation, the program specifically designed for all of them, the very few who were able to establish a common law products liability claim collected $1.5 billion in damages. The Ontario statute bars such tort actions against third party Ontario employers who are covered by and contribute to the collective workers' compensation fund. But there remains the prospect of suits against third parties who are not Ontario employers: private drivers inside the province, manufacturers located outside the province and the like. The Ontario Board has a staff of lawyers regularly involved in litigation of this kind.

At the end of this long and winding path we can see clearly the principles which should inform the evolution of disability policy in Ontario:

(i) The ultimate objective should be comprehensive insurance against the effects of disabling injuries. The touchstone for entitlement should be the loss suffered by the victim, not the identity or culpability of the causal agent.

(ii) Since we already have comprehensive protection against the hospital and medical costs of such injuries, the highest priority is replacement of income for those disabled for extended periods of time (six months and more).

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*One illustration of how the judgments can differ from these two distinct perspectives is the issue of determining the cost of the injury. The community may decide, for the reasons noted in Chapter 3, that it cannot afford to guarantee everyone full compensation for all losses from every injury. A variety of limitations will be established: in terms of income replacement, damages for pain and suffering, and so on. But the fact that these are not fully compensated by society does not mean these are not real losses to the individual. To the extent we want to have those who engage in risky activities or industries face the true costs these entail, it would be perfectly rational to calculate a larger, more adequate estimate of the damages inflicted by the injury for purposes of experience rating.

(iii) The ultimate source of financing should be a premium collected from the insured — the people earning an income which could be interrupted by a disability. The size of this premium should vary both with the level of income and with the presence of nonearners in the family who are also protected.

(iv) However, in financing the plan a sustained effort should be made to charge to the participants in comparatively risky activities a fair estimate of the disability costs produced by these activities. Immediate candidates for such special levies would be automobile driving (as well as air or rail transportation), the manufacture and use of cigarettes (along with other relatively dangerous products), and the world of employment (about which we have extensive experience with workers' compensation).

(v) The plan should not assess each participant in the activity a uniform amount designed simply to recover the total cost of compensating its victims. One needs carefully designed systems of experience rating and emissions charges, which will provide meaningful incentives for the individual firm to do what is necessary to reduce the injury level.

(vi) There must be close collaboration between those involved in the design and administration of the prevention side of the disability plan and the authorities responsible for setting and administering regulatory standards, in order to insure that these two policy instruments complement each other as much as possible.

D — Specific Recommendations for Changing Workers' Compensation

As I stated in the opening Chapter, my purpose has not been to try to write a detailed blueprint of a new disability plan. This must await the deliberations and recommendations of the Federal-Provincial Task Force on the subject. What I have tried to do is show why a comprehensive and integrated disability program is the natural ideal when viewed from the angle of vision of workers' compensation itself, in particular when we reflect seriously about the problems of industrial disease and injury prevention. While I have developed the reasons which persuade me that we should be moving towards this ultimate goal, I have no illusion that it will happen overnight. A distinct categorical program of workers' compensation will be with us for some time. Many changes are justified within the current framework. The important ones have been stated in the course of this Report; others are implied by my argument. I shall conclude this Report by drawing these recommendations together in a systematic way.

1 — Compensating Industrial Diseases

1.1 The statute must be revised so that industrial disease claims have full legal equality with accident claims. The amendments required to do this are contained in the revised draft statute now before the Legislative Assembly.

1.2 While equality under workers' compensation law must be our ultimate aim for victims of occupational disease, the means to this end cannot be mere identical treatment. Fundamental empirical differences between the typical accident and a long-latency disease render the simple legal definition and procedure which is appropriate for the former, insufficient for the latter.

1.3 The single most important legislative/administrative reform must be the creation of an Industrial Disease Standards Panel (IDSP) which will be charged with the primary responsibility for developing criteria for evaluating disease claims.

1.4 The IDSP should be a continuing body with a small administrative staff, whose activities are funded out of workers' compensation assessments. Its members will be appointed by the Lieutenant-Governor-in-Council to serve part-time, for set terms. They should include not simply eminent medical specialists but also people with experience in other relevant disciplines, such as industrial hygiene or compensation adjudication.

1.5 On request or on its own initiative, the Panel should undertake investigation of possible industrial diseases, decide whether a probable connection exists between the disease and an industrial process in Ontario, and then formulate the conditions under which the disease claim is presumed to be valid.

1.6 The IDSP should be empowered to establish a special investigating panel for particular diseases, and to appoint to it ad hoc members who are specialists in this disease and/or industrial process. This panel will actually conduct the review of this case and make recommendations to the IDSP of what should be the appropriate standards for adjudication.

1.7 The procedure followed by the IDSP should be an open one, in which appropriate notice of the inquiry is given, a document is published canvassing the issues and making tentative recommendations, submissions and commentary are elicited from the interested parties, and perhaps a hearing is scheduled, before a standard is finally issued.

1.8 The product of the IDSP process should be a published legal standard which will be incorporated in an Appendix to the Act, and which will establish a strong presumption that a person who manifests a disease after being exposed at work in the manner defined is actually a victim of this industrial disease.

1.9 The IDSP should also establish standards, to the extent feasible, to define whether certain kinds of fatality are presumptively likely to be due to certain types of disease, in order to facilitate the disposition of these often traumatic survivorship claims.

1.10 Neither the absence of a standard nor the failure to satisfy the conditions of an existing standard should be considered a sufficient reason for denial of an individual claim. While on its face this appears to be the Board's current policy, the actual practice in Board adjudication does not live up to this promise as much as it should.

1.11 To this end, Board adjudicators should be more prepared to initiate investigation of a particular workplace by an industrial hygienist even before a medical judgment is made; rather than doing so simply to corroborate what already seems on medical grounds to be the probable cause.

1.12 The Board must also accelerate its efforts to improve awareness of the potential contribution of the workplace to particular diseases, in order to enhance the chances that an initial claim will even be made. To the extent that this is warranted, the fee structure established by the Board for compensating medical aid to injured workers should reflect this objective.

1.13 A somewhat greater share of the resources of the compensation program should be devoted to study of the causes and potential control of industrial disease. An initial effort should be a comprehensive epidemiological study to discern the likely contribution of work in Ontario to lung cancer and to chronic obstructive lung disease. Needless to say, not only would this research facilitate awarding of compensation due to those workers afflicted as a result of prior exposure; but it would also be of great assistance in shaping the future prevention policies of the Ministry of Labour.

2 — Using Compensation for Prevention

2.1 The role which workers' compensation can play in preventing industrial injuries must be emphasized much more than it is now. While it is natural that WCB officials have tended to concentrate on their immediate task of compensating individuals who have already been hurt, a program which raises over $600 million a year from Ontario employers to pay for these injuries must be mobilized to prevent injuries before they occur.

2.2 This will require much closer collaboration between the Board and the people in the Ministry of Labour who are responsible for occupational health and safety, and who are the specialists in prevention programs. Such collaboration will involve not just occasional meetings of high-level officials, but also, and more important, joint involvement in specific areas and projects where their responsibilities overlap.

2.3 An important illustration is the Safety Association. These Associations are a long-standing feature of the safety education and prevention activities in this province. They now spend close to $30 million per year, money raised by the WCB from Ontario employers. A Report of the Advisory Committee on Occupational Health and Safety has recommended significant changes in the orientation of these associations. The Minister of Labour has asked me to assess the recommendations of this Report and the responses to it. Meanwhile the Board, which has formal responsibility for the Associations, has begun to assert a more active role in reviewing their budgets. I have suggested that the Board also look at the programs undertaken by the various Associations in order to evaluate their underlying philosophy and effectiveness. Clearly the latter task must involve the expertise of the Occupational Health and Safety division of the Ministry. Thus an informal working group of WCB and Ministry officials has been established. I shall be watching these developments with interest before reporting to the Minister on this subject later this year.

2.4 An important issue at the intersection of the WCB, the Ministry, and the Safety Associations is the collection and analysis of data on industrial accidents. In effect, the Board serves as the eyes and ears of the province on the size and distribution of the occupational injury problem. However, serious deficiencies exist in the current collection and transmission of this data, especially to the extent that either the Ministry or particular Associations wish to use it to better understand the causes and reduce the incidence ofaccidents.

2.5 During the course of my Inquiry, I have strongly recommended to the Board, the Ministry and the Associations that they work together to develop a better Form for employer reporting of workplace injuries. Ideally this should be a two-part Form, the first part of which would contain the bare information needed to process the compensation claim, while the second part — to be completed and filled out later by the employer — would contain more elaborate details of the circumstances of the injury, which would help in understanding, and then controlling, the important recurring causes. It is up to the Ministry and the relevant Association to decide what should be the contents of Part II of the Form, and it is up to the WCB to see that the relevant data are collected and then provided to the bodies which need them.

2.6 The major recommendations that I have to make in this area concern experience rating. If we are to retain workers' compensation as a distinct program for compensating occupational injuries through funds contributed by Ontario employers, it is time that the assessments of the firms were related to their individual experience, with the safer employers getting a refund from the group rate and the more hazardous firms paying a surcharge.

2.7 In this Report I have not attempted to draw a precise blueprint of such an experience rating plan, but simply to state the general principles which I believe should govern. Because the purpose of such a plan must be to harness the financing mechanism in workers' compensation for the prevention of occupational injuries, it is important that the details of its design not be written solely by the actuarial staff of the Board, but that they also bear the imprint of the Health and Safety Division of the Ministry of Labour.

2.8 Not all the costs of the program can and should be calculated on an individual firm basis. I refer here not just to general administrative expenses, but also to the cost of compensating progressively-developing diseases (e.g., silicosis), where the exposure may have occurred at a number of different mines; and also long-latency diseases (e.g., cancer) where the critical exposure may have occurred many years before the malignancy manifested itself.

2.9 While costs such as these should not be attributed to individual employers, the entire assessment of the firm (which goes to pay for these general Board expenses) should be subject to the experience rating factor calculated from those compensation costs which can be individually charged. This enables us to make full use of the entire compensation assessment to maximize the employer incentive to invest in a safer workplace for its employees.

2.10 The future cost of serious disabilities should be capitalized and then averaged with other such injuries that year. Averaging the cost will remove a good deal of the randomness in the severity of an injury, a factor which to a considerable extent is beyond the control of the individual employer. Capitalizing the cost will preserve as close a connection as possible between the time when the injury actually took place and the time when the additional surcharge is felt by management.

2.11 There should not be a single across-the-board formula for experience rating, one which would be much too diluted for the firms with large claims volume yet still statistically invalid for the small firms. The design of the plan should be such as to maximize the incentives felt by the larger employers, while reducing the degree of individual rating as size declines.

2.12 For firms with large, regular compensation costs, all the variation from the industrial average should be refunded or surcharged to individual firms in the year in which the injuries occurred and for which the assessments are paid. This would be subject to certain maximum limits beyond which the WCB would, in effect provide even the largest firms with catastrophe insurance against major workplace disasters.

2.13 As the size of the firm and its compensation volume decreases, the Board should first calculate the experience rating factor on the basis of two- or three-year running averages, in order to smooth out the randomness in any single year's experience. As the size and volume gets even smaller and less credible, the Board should experience-rate only a portion of the relevant compensation costs. The cut-off points for these different levels of experience rating should be fixed in accordance with actuarial standards.

2.14 There will remain firms whose compensation volume is too small to statistically justify their inclusion in an experience rating plan, no matter how diluted. For them the Board should create a deductible in the compensation insurance provided. While the injured worker will collect from the Board the full compensation benefits payable under the Act, the initial cost of this claim — perhaps up to $500 — would be charged to the account of the individual firm. This would maintain the incentive of the firm to reduce the frequency of the accidents in its operations, while giving it the insurance needed against the occasional severe injury.

2.15 Before an experience rating plan is put into operation, the Ministry must commission a thorough and sophisticated research study, which would be built into the program and capable of determining both the impact of financial incentives on future injury rates, and also any problems which may crop up in the processing of compensation claims. Not only would this take advantage of a major opportunity to further our general understanding about how best to reduce the level of occupational injuries, but it would also serve to detect problems and suggest changes in the ongoing experience rating program itself.

References

Chapter 1

1. Weiler, *Reshaping Workers' Compensation for Ontario* (1980).

2. Government of Ontario, *White Paper on the Workers' Compensation Act* (1981).

3. The two most prominent American scholars of workers' compensation both endorse the principle of actual wage loss as the basic criterion for permanent partial disability benefits: see Arthur Larson, The Wage-Loss Principle in Workers' Compensation, 6 *William Mitchell Law Review* 501 (1980), and John Burton, Permanent Partial Disability Benefits (1981, NCCI Seminar). Professor Burton, who was Chairman of the National Commission on State Workers' Compensation Laws (1972) has done extensive empirical research on the problem of the current "meat chart" approach in the United States: see especially Burton and Vroman, Permanent Partial Disability, in VI *Research Reports of the Interdepartmental Workers' Compensation Task Force* (1979) 15.

4. Guest, *The Emergence of Social Security in Canada* (1980), esp. Ch. 4.

Chapter 2

1. Sources for these and other analogous figures will be supplied in Chapter 3 where I deal in detail with the comparative cost of different kinds of disability programs.

2. The figures in this Table are drawn from statistics provided by the WCB to Doctor Yassi and incorporated in her *Report on Occupational Diseases in Workers' Compensation in Ontario* (1983): I-1 and II-2.

3. Canada Pension Plan, *Statistical Bulletin* (March, 1982).

4. Appendix IB in the *Yassi Report* contains a Table of Hospital Morbidity in Ontario drawn from Statistics Canada, *Hospital Morbidity* (1976).

5. See Appendix IA in the *Yassi Report* above, which contains a Table on "Causes of Death in Ontario: 1978", from Province of Ontario, *Vital Statistics for 1978* (1979).

6. See Table I-5 in the *Yassi Report*, reprinted from U.S. Department of Labor, *Interim Report to Congress on Occupational Disease* (1980) at p. 72.

7. Chovil, McCracken, Dowd, Stewart, Burton and Dyer, Occupational Cancer Experience in Ontario, 125 *Can. Medical Ass. J.* 1237 (1981).

8. These and other figures in this paragraph are taken from Clarke and Spengler, A Review of Cancer Mortality, Incidence and Treatment in Ontario, in Ontario Cancer Foundation, *Cancer in Ontario* (1980) 47. The American pattern is essentially the same: see Doll and Peto, The Causes of Cancer: Quantitative Estimates of Avoidable Risk of Cancer in the United States, 66 *Journal of the National Cancer Institute* 6 (1981).

9. Davis and Magee, Cancer and Industrial Chemical Production, 206 *Science* 1356 (1979).

10. Bridbord *et al*, Estimates of the Fraction of Cancer in the United States Related to Occupational Factors, has been reproduced as an Appendix to the Banbury Report No. 9, *Quantification of Occupational Cancer* (1981).

11. The best overview of this debate is to be found in the Banbury Report No. 9, note 10 above, which contains papers by the authors and the critics of the Estimates Paper. Another public statement of somewhat the same genre as the Estimates Paper is by the U.S. Toxic Substances Strategy Committee, *Toxic Chemicals and Public Protection* (1980), particularly Chapter VII. The most sustained and effective critique of this approach and these estimates is by Doll and

Peto, The Causes of Cancer, cited in Note 8 above. Several of the authors of the Estimates Paper return to the fray in Davis, Bridbord, and Schneiderman, Cancer Prevention, in 2 *Teratogenesis Carcinogenesis and Mutagenesis* 105 (1982).

12. See for example, Wynder and Gori, Contribution of the Environment to Cancer Incidence, 58 *Journal of the National Cancer Institute* 825 (1977); Cole and Merletti, Chemical Agents and Occupational Cancer, 3 *Journal of Environmental Pathology and Toxicology* 399 (1980), and Higginson, Proportion of Cancers Due to Occupation, 9 *Preventive Medicine* 180 (1980).

13. Note 8 above.

14. Epstein and Swartz, Fallacies of Lifestyle Cancer Theories, 289 *Nature* 127 (1981).

15. See the several papers on asbestos in the Banbury Report No. 9 at pp. 3-111. The report of the most thorough study of this subject, by Selikoff *et al, Disability Compensation for Asbestos-Associated Diseases in the United States* (U.S. Dept. of Labor: 1982) has just been issued, and Selikoff concludes that the current expected range of the contribution of workplace exposure to asbestos to cancer is between 8 and 10,000 cancer fatalities a year, or about 2% of the total (rather than the 58 to 75,000 predicted by the Estimates Paper).

16. Doll and Peto, Note 8 above, at pp. 1305-06.

17. The figures in this Table are drawn from Tables II-13 and II-14 in the *Yassi Report*. The first column contains the estimates of the percentage of cancer fatalities caused by occupational factors, broken down by site. The second column contains an application of these percentages to the Ontario cancer fatality totals, again by site. The third column contains the actual distribution of cancer claims (fatal or otherwise) reported to the WCB in 1980. The last column gives the *total* of cancer fatality claims allowed by the WCB that year: unfortunately Board statistics do not break down allowed claims by site.

18. The best description and appraisal of the American program's handling of industrial disease is Barth, *Workers' Compensation and Work-Related Illnesses and Disease* (1980). A detailed report of the legal hurdle encountered by disease claimants in the many different state programs is Larson, *Analysis of Current Laws Reflecting Workers Benefits for Occupational Disease* (1979).

19. The *Yassi Report* is a comprehensive description and analysis of how the Ontario Board handles a broad range of seriously disabling diseases: particularly cancer and the respiratory diseases. Barth, *Workers' Compensation and Asbestos in Ontario* (1982), a study done for the Royal Commission on Asbestos, is an in-depth study of how the WCB has handled asbestos-related diseases.

20. With the assistance of the statistical branch of the Board, Doctor Yassi did a Survey of a carefully-selected sample of disease claims of different types, and how they appeared through the various stages of the WCB procedure. The figures in this paragraph are drawn from her report of the Survey results.

21. Besides the *Yassi Report* and the work of Peter Barth, notes 18 and 19 above, I found especially illuminating the following discussion papers: Ison, The Dimensions of Industrial Disease (1978), and Burton, The Challenge of Disease for Workers' Compensation (1981).

22. Gibson, Martin, and Lockington, Lung Cancer Mortality in a Steel Foundry, 19 *Journal of Occupational Medicine* 807 (1978). Figures in the text are contained in a Table reproduced in Appendix IIIC of Chapter 2B of the *Yassi Report*.

23. See the analysis in the *Yassi Report* (Ch. IIB: 3.2) of the series of papers on steelworker mortality in U.S. steel mills published by Lloyd, Remond *et al* in the *Journal of Occupational Medicine*, and their relevance to the coke oven standard evolved by the Ontario Board.

24. An influential formulation of this distinction is Weinberg, Science and Trans-Science, 10 *Minerva* 209 (1972). McGarity, Substantive and Procedural Discretion

in Administrative Resolution in Science Policy Questions, 67 *Georgetown Law Journal* 729 (1979), is an illuminating account of its significance in judgments about the regulation of carcinogens. For the reasons stated in the text, I find this distinction equally important in the judgments about the compensation of the victims of cancer.

25. The *Yassi Report* provides a detailed account about the creation of each of the Board's policy guidelines and their evolution and revision in light of the new controversies and new evidence.

26. In my first Report *Reshaping Workers' Compensation for Ontario* (1980).

27. The results are reported in Ch. IV of the *Yassi Report* "Work-Related Deaths".

28. The contribution of Barth to the Selikoff study of Disability Compensation for Asbestos-Associated Diseases in the United States (1982), in particular Ch. 5, Compensation for Asbestos-Associated Disease: A Study of Asbestos Insulation Workers in the United States and Canada, disclosed a surprising degree of ignorance of the medical and legal factors which would support a workers' compensation claim among a group which probably constitutes the "best case" for workers' compensation handling of the industrial disease problem.

29. In particular, Discher, Kleinman, and Foster, *Pilot Study for the Development of an Occupational Disease Surveillance Method* (NIOSH, 1975).

30. See Peto and Schneiderman, Afterword, in the *Banbury Report No. 9* (1981), at 695. Analyses of how it should be done include Peto, Considerations for Designing a Large-Scale Case-Control Lung Cancer Study to Explore Occupational Risks, *Banbury Report No. 9* at 651, and Siemiatycki, Day, Fabry and Cooper, Discovering Carcinogens in the Occupational Environment, A Novel Epidemiologic Approach, 66 *Journal National Cancer Institute* 317 (1981).

Chapter 3

1. This figure comes from a Table on the Causes of Death in Ontario published by the Province of Ontario, *Vital Statistics for 1978* (1979), and reproduced in Appendix I-A of the *Yassi Report*.

2. *Ontario Motor Vehicle Accident Facts* (1981).

3. Best, *Home Accidents Study* (Ontario Ministry of Health, 1980).

4. Health and Welfare Canada, *Report on the Survey of CPP Disability Benefit Recipients* (1981), at 14.

5. Statistics Canada, "Results from the Absence from Work Surveys 1978-1981", *Labor Force Survey* (1982).

6. Government of Manitoba, *Accident and Sickness Compensation in Manitoba* (1977), at 13.

7. See the annual publication by the U.S. National Safety Council, *Accident Facts* (1982), at 3.

8. This Table was prepared for me by Cherith Muir on the basis of statistics provided by the different agencies responsible. We have incorporated the figures from 1981 because this was the latest year for which comprehensive data were available. Belobaba, *Products Liability and Personal Injury Compensation in Canada* (1981, unpublished), provides a useful description, with statutory references, of the various schemes for compensating the victims of disabling injuries in Canada (in Chapter 3, in particular). The Fifth Report of the Ontario Select Committee On Company Law, *On Accident and Sickness Insurance* (1981) is a valuable source of information about the situation in Ontario, especially about the private insurance system in this area.

9. A succinct statement of the current principles of tort damages in Canada is McLachlin, What Price Disability? A Perspective on the Law of Damages for Personal Injury, 59 *Canadian Bar Review (1981)*.

10. See Rea, *Disability Insurance and Public Policy* (1981), at 63-70.

11. Ontario Law Reform Commission, *Report on Motor Vehicle Accident Compensation* (1973), Ch. 5.

12. We verified that $280 million was spent on automobile liability insurance in 1981. The overall figure includes what I believe is a generous estimate of the additional money spent on products, occupiers, medical malpractice and other such liability insurance.

13. In doing so one is fortunate in being able to draw on detailed analysis of this subject in several different countries: Atiyah, *Accidents, Compensation and the Law* (3rd ed. 1980) from Great Britain; Palmer, *Compensation for Incapacity* (1979) for Australia and New Zealand; O'Connell, *Ending Insult to Injury* (1975) and *The Lawsuit Lottery* (1979) in the United States, and Belobaba, note 8 above for Canada. And, of course, the writings of Ison, *The Forensic Lottery* (1967) about Britain, *Accident Compensation* (1980) about New Zealand and *Human Disability and Personal Income* (1978) about Canada has also been very influential in this debate.

14. Ontario Law Reform Commission, *Report on Motor Vehicle Accident Compensation* (1973); British Columbia, *Report of the Royal Commission on Automobile Insurance* (1968); Quebec, *Report of the Committee on Automobile Insurance* (1974); U.S. Department of Transportation, *Economic Consequences of Automobile Accident Injuries* (1970); Great Britain, *Report of the Royal Commission on Civil Liability and Compensation for Personal Injury* (1978); Australia, *Report of the National Committee of Inquiry on Compensation and Rehabilitation* (1974); New Zealand, *Report of the Royal Commission on Compensation for Personal Injury* (1978).

15. See Palmer, note 13 above, at 43.

16. A nice short statement of this point of view is a review article of the Palmer book by Henderson, The New Zealand Accident Compensation Reform, 48 *U. of Chicago Law Review* 781 (1981).

17. See the remarks by Laycroft, Rachlin, and Linden in Symposium, *The Future of Personal Injury Compensation* (1978).

18. See Ch. 19, "An Appraisal of the Fault Principle" in Atiyah, note 13 above.

19. See the Ontario Law Reform Commission Study cited in note 14 above, at Ch. 7.

20. See, for example, Atiyah, No Fault Compensation: A Question That Will Not Go Away, 54 *Tulane Law Review* 271 (1980) at 291-92.

21. Ison, *Accident Compensation* (1980), at 122-23.

22. Palmer, note 13 above, at 346-47.

23. See generally Calabresi, *The Costs of Accidents* (1970), Ch. 4.

24. See Rea, *Disability Insurance and Public Policy* (1981), esp. Ch. 3; compare with Calabresi, note 23 above, at 55-64.

25. See the studies discussed in Rea, note 24 above, at 3-6.

26. Ison, *Human Disability and Personal Income* (1978) at 26-29.

27. See Report of Ontario Select Committee, note 8 above, at 83-104.

28. A revealing table in U.K. Royal Commission Report, cited in note 14 above, at p. 11, provides graphic testimony to the heavy concentration of short disabling absences from work: 75% in spells of four weeks or less.

Chapter 4

1. Tuohy and Trebilcock, *Policy Options in the Regulation of Asbestos-Related Health Hazards* (1982), a study prepared for the Royal Commission on Asbestos, is a comprehensive review of the issues and the literature of this subject. I shall cite most of the major pieces as they become relevant at different points in this Chapter.

2. There are two good reviews of this literature: Smith, Compensating Wage Differentials and Public Policy; A Review 32 *Industrial and Labor Relations Review* 339 (1979) and Gunderson and Swinton, *Collective Bargaining and Asbestos Dangers at the Workplace* (1982), Appendix A, another study done for the Royal Commission on Asbestos.

3. Smith, *The Occupational Safety and Health Act* (1976) Appendix B; Viscusi, *Employment Hazards* (1979), Ch. 15; Olson, an Analysis of Wage Differentials Received By Workers On Dangerous Jobs, 16 *Journal of Human Resources* 167 (1980), and Veljanovski, The Economics of Job Safety Regulation: Theory and Evidence (Oxford, 1978).

4. Thaler and Rosen, The Value of Saving a Life: Evidence from the Labor Market, in Terleckyj, ed., *Household Production and Consumption* (1975); Brown, Equalizing Differences in the Labor Market, 94 *Quarterly Journal of Economics* 113 (1980); Dillingham, The Injury Risk Structure of Occupations and Prices (referred to in the Smith article note 2 above).

5. Besides those cited in both 3 and 4 above, see McClean, Wendling and Neergaard, Compensating Wage Differentials for Hazardous Work: An Empirical Analysis, 18 *Quarterly Review of Economics and Business* 97 (1978); and Hamermesh, Economic Aspects of Job Satisfaction, in *Essays in Labor Analysis* (1978) at 63-72.

6. Hinton, The Value of A Limb: Evidence from the Canadian Labour Market (1980).

7. Viscusi, note 3 above at 250.

8. Olson, note 3 above, at 179.

9. See, for example, the work of Smith and Viscusi, note 3 above.

10. A good summary of the reasons why is to be found in Manga, Broyles and Reschenthaler, *Occupational Health and Safety: Issues and Alternatives* (1981: Economic Council of Canada).

11. See generally Gunderson and Swinton, cited in note 2 above and Bacow, *Bargaining for Job Safety and Health* (1980).

12. Olson, note 3 above, at 182.

13. Ch. 3 of Darling-Hammond and Kniesner, *The Law and Economics of Workers' Compensation* (1980) is a good introduction to the relationship between the labour market and workers' compensation. Oi, Workers' Compensation and Industrial Safety, I *Supplemental Studies for the National Commission on State Workmen's Compensation Laws* 43 (1973) is a much more sophisticated and detailed treatment of this issue.

14. See Vroman, The Incidence of Compensation Insurance Payments, II *Supplemental Studies for the National Commission On State Workmen's Compensation Laws* 241 (1973).

15. On the general principles which imply such a liability system see Calabresi, *The Costs of Accidents* (1970).

16. Tuohy and Trebilcock, note 1 above, provides a good analysis of the nature and limits of both tort liability (in Ch. 7) and administrative regulation (in Ch. 9).

17. Compare Smith, *The Occupational Safety and Health Act* (1976) with Ashford, *Crisis in the Workplace* (1977): see also Nichols and Zeckhauser, The Occupational Safety and Health Administration: An Overview, in U.S. Senate VI *Study on Federal Regulation* 163-248 (1978).

18. See Economic Council of Canada, *Reforming Regulation* (1981) esp. Ch. 9; also Manga *et al*, note 10 above.

19. A nice statement of the difficult problems faced by any regulatory system is found in Bacow, note 11 above at 3-11.

20. These ethical issues are introduced in Tuohy and Trebilcock, note 1 above, Ch. 5. See also Kelman, *What Price Incentives* (1981), Ch. 3.

21. See Manga *et al*, note 10 above at 239-243.

22. Smith, note 3 above at 67-70; Viscusi, The Impact of Occupational Safety and Health Regulation, 10 *Bell Journal of Economics* 117 (1979); Mendeloff, *Regulating Safety* (1979), esp. at 102-105.

23. See Viscusi, note 22 above, at 126 and Mendeloff note 22 above at 90. Those were the figures for the Mid-Seventies, the period during which the impact of OSHA was being studied empirically. Later in the decade OSHA changed its enforcement policies to reduce the number of inspections and of violations found, but to increase the average penalty level to near $200. a violation. This raised the discounted penalty risk for each establishment from $2.50 to $7.00 annually by the early 80's: See Viscusi, *Risk by Choice* (1983) at 24.

24. These figures were supplied to me by the Ontario Ministry of Labour. A more detailed description of the inspection system and practice in this province can be found in Doern, Prince and McNaughton, *Living with Contradictions: Health and Safety Regulation and Implementation in Ontario* (1982), a study prepared for the Royal Commission on Asbestos, especially at P. 3.48 and following.

25. Smith, The Impact of OSHA Inspection on Manufacturing Injury Rates, 14 *Journal of Human Resources* 145 (1979).

26. Cooke and Gautschi, OSHA, Plant Safety Programs, and Injury Reduction, 20 *Industrial Relations* 245 (1981).

27. That hypothesis is supported to some extent by Lewis-Beck and Alford, Can Government Regulate Safety? The Coal Mine Example 74 *American Political Science Review* 745 (1980), which finds a significant effect of administrative regulation on the fatality rate in American coal mines under the Federal Coal Mines Health and Safety Act, which provides much greater inspection and enforcement resources to the U.S. Mining Enforcement and Safety Administration than is enjoyed by OSHA.

28. Mendeloff, note 22 above, at 105-120.

29. Doern *et al*, note 24 above.

30. Gunderson and Swinton, note 2 above, describes and appraises the concept of joint health and safety committees under the Ontario legislation. A detailed evaluation of this operation in the Ontario mining industry is to be found in the Report of the Inquiry Commission on Safety and Mines, *Towards Safe Production* (1981) at 60-79.

31. Cooke and Gautschi, note 26 above.

32. The statistics in this section and in Table 1 were prepared by Anne Forrest from figures supplied to her by the Ontario Board.

33. A brief description of the NCCI plan is to be found in its publication *The ABC's of Experience Rating*. An as yet unpublished work by Victor, *Workers' Compensation and Workplace Safety: The Nature of Employer Financial Incentives* (1982), provides a detailed analysis of how the NCCI formula works in a wide range of situations.

34. This material was initially gathered and analyzed in Atiyah, Accident Prevention and Variable Premium Rates for Work-Related Accidents, 4 *Industrial Law Journal* 1 and 195 (1975) and then reanalyzed by Phillips, Economic Deterrence and the Prevention of Industrial Accidents, 5 *Industrial Law Journal* 148 (1976).

35. Strand and Johnson, An Analysis of the Safety Incentive Provided by Experience Rating Under the Workers' Compensation Program. (1980).

36. Smith and Chelius, The Responsiveness of Injury Rates to Experience-Rating of Workers' Compensation Insurance (1982).

37. Chelius, Liability for Industrial Accidents: Comparison of Negligence and Strict Liability Systems, (1976) *Journal of Legal Studies* 293.

38. Russell, Pricing Industrial Accidents, III *Supplemental Studies for the National Commission on State Workman's Compensation Laws* (1973) 29; see also Russell, Safety Incentives in Workman's Compensation Insurance 9 *Journal of Human Resources* 361 (1974).

39. Chelius, The Control of Industrial Accidents: Economic Theory and Empirical Evidence 38 *Law and Contemporary Problems* 700 (1974); Smith, The Feasibility of An "Injury Tax" approach to Occupational Safety, 38 *Law and Contemporary Problems* 729 (1974); Chelius, The Influence of Workers' Compensation on Safety Incentives, 35 *Industrial and Labor Relations Review* 235 (1982).

40. This notion of a "deductible" in the insurance of employers against their workers' compensation liability is suggested in Smith, Protecting Workers' Health and Safety, in Poole (ed.), *Instead of Regulation* 311 (1981), at 328-30.

Chapter 5

1. For example, Smith, *The Occupational Health and Safety Act* (1976); Nichols and Zeckhauser, Government Comes to the Workplace: An Assessment of OSHA, 49 *Public Interest* (1977); Manga, Broyles and Reschenthaler, *Occupational Health and Safety: Issues and Alternatives* (1981: Economic Council of Canada). See also Strand and Johnson, Differentiating Occupational Illness and Injury: The Private Costs and Economic Incentives, 14 *Soc. Sci. and Med.* 259 (1980).

2. The notion of emission fees, or effluent charges as they are sometimes called, has long figured in the debate about how best to reduce pollution of the general environment: see Schultze, *The Public Use of Private Interest* (1977) and Kelman, *What Price Incentives* (1982). The same considerations are relevant to the clean-up of the workplace environment.

3. Bernstein, Third Party Claims in Workers' Compensation, (1977) *Washington U. Law Quarterly* 543.

4. Pierce, Encouraging Safety: The Limits of Tort Law and Government Regulation, 33 *Vanderbilt Law Review* 1281 (1980), provides a more detailed description of how to do this (esp. at 1319-30).